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4	149	@ad<20000706 and 705/35-45.ccls. and "real estate"	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/03/11 16:20
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6	81	@ad<20000706 and REIT	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/03/11 16:58
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**Austin**

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 [45] **Date of Patent:** **\*Sep. 7, 1999**

[54] **SYSTEM FOR MANAGING REAL ESTATE  
 SWAP ACCOUNTS**

[75] **Inventor:** **Clive H. Austin**, New York, N.Y.

[73] **Assignee:** **Merrill Lynch, Pierce, Fenner &  
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[\*] **Notice:** This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

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[22] **Filed:** **Oct. 14, 1994**

[51] **Int. Cl.<sup>6</sup>** ..... **G06F 17/60**

[52] **U.S. Cl.** ..... **705/35; 705/36**

[58] **Field of Search** ..... **364/408; 705/35,  
 705/36**

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*Primary Examiner*—Emanuel Todd Voeltz

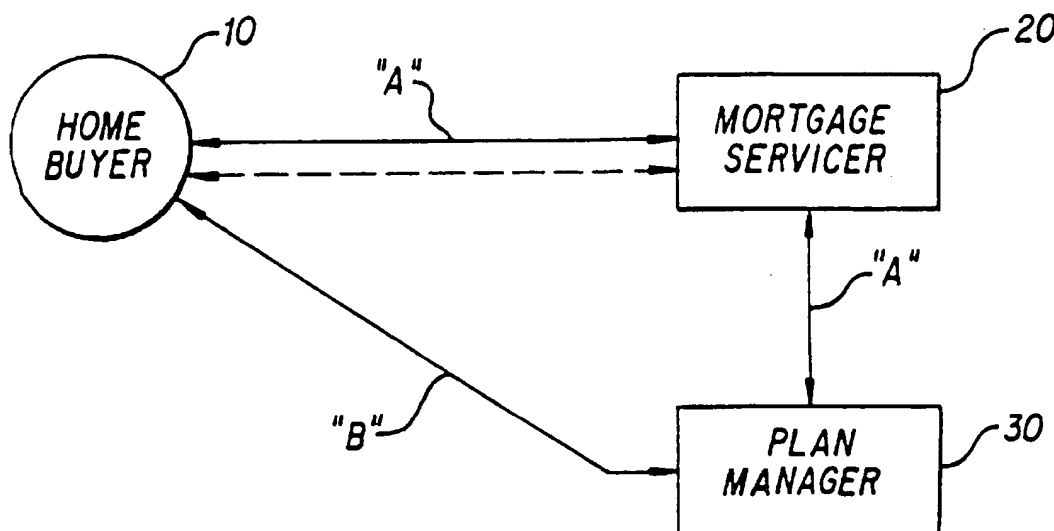
*Assistant Examiner*—William N. Hugnet

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[57] **ABSTRACT**

A data processing system for managing a plurality of discrete accounts. Each account provides a swap between a property holder and the plan manager wherein the holder dilutes their exposure to the real estate market by exchanging future appreciation of the property for a current cash flow stream. The system thereafter implements the packaging of plural accounts into baskets of real estate assets and sells this real estate exposure to the institutional market. The data processor retains a system equilibrium by continuously updating the relative positions and the control parameters influencing these positions.

19 Claims, 8 Drawing Sheets



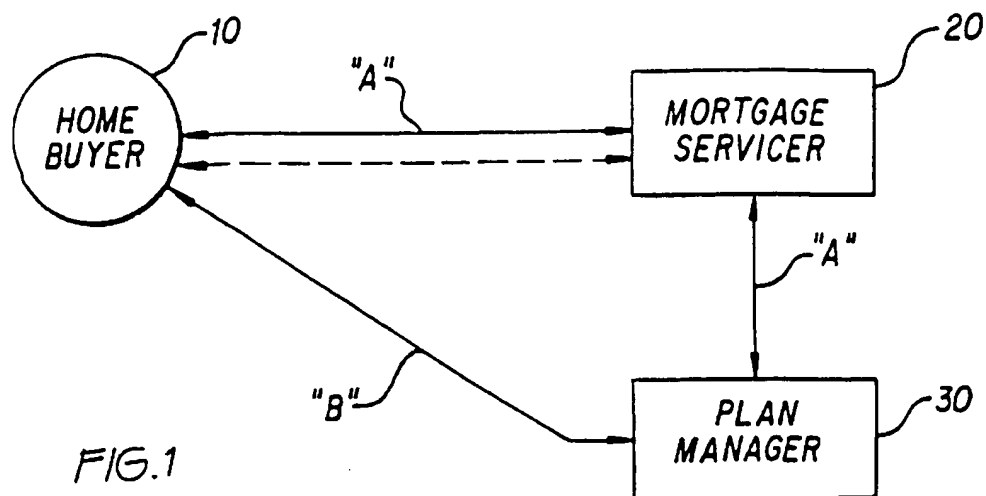
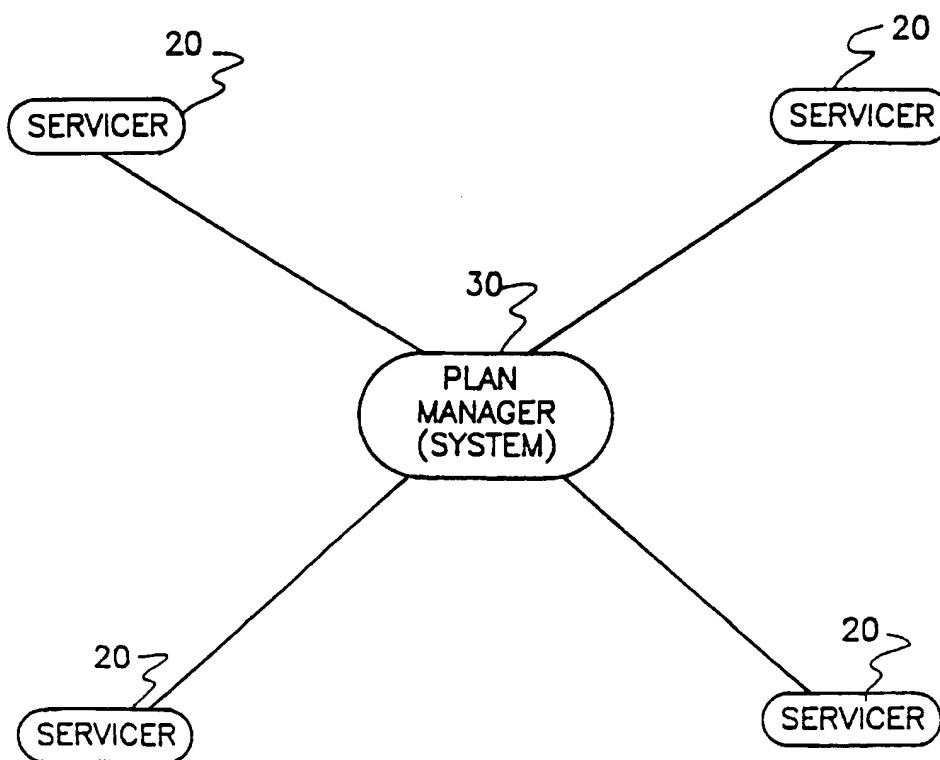


FIG. 2



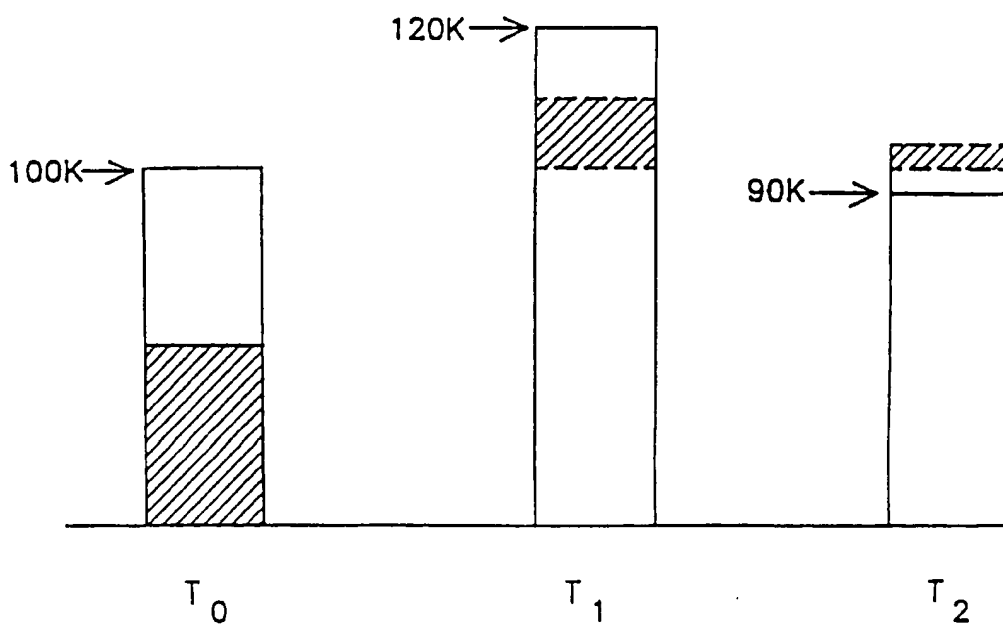
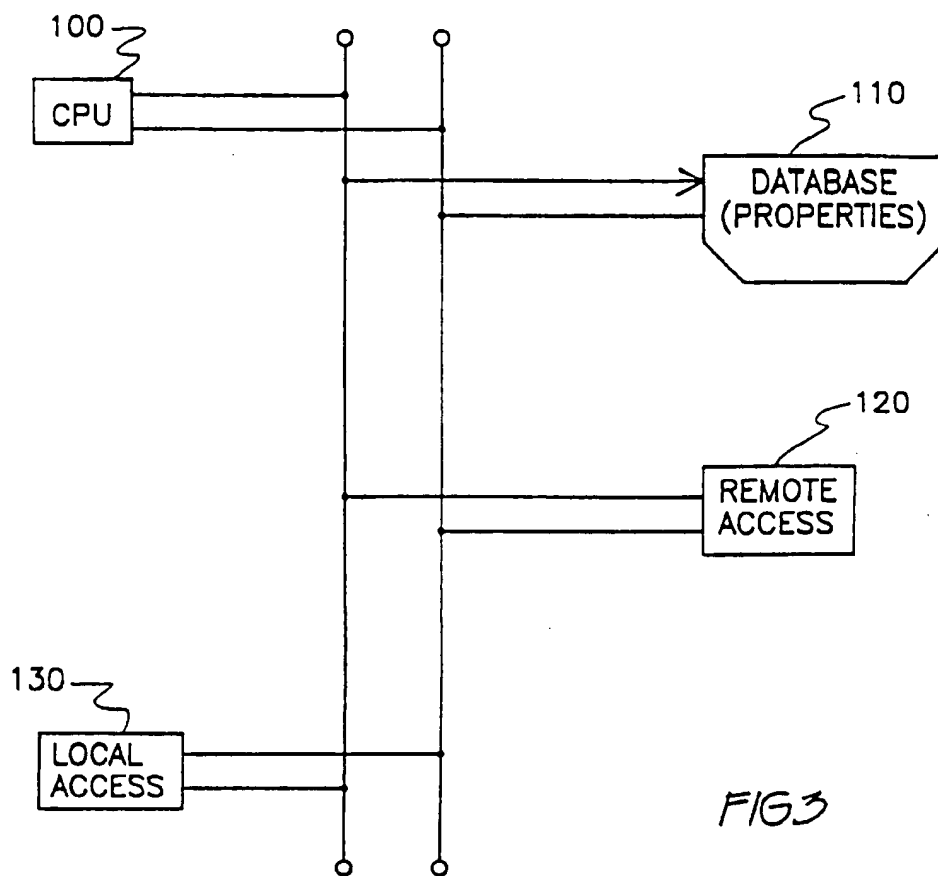


FIG. 4

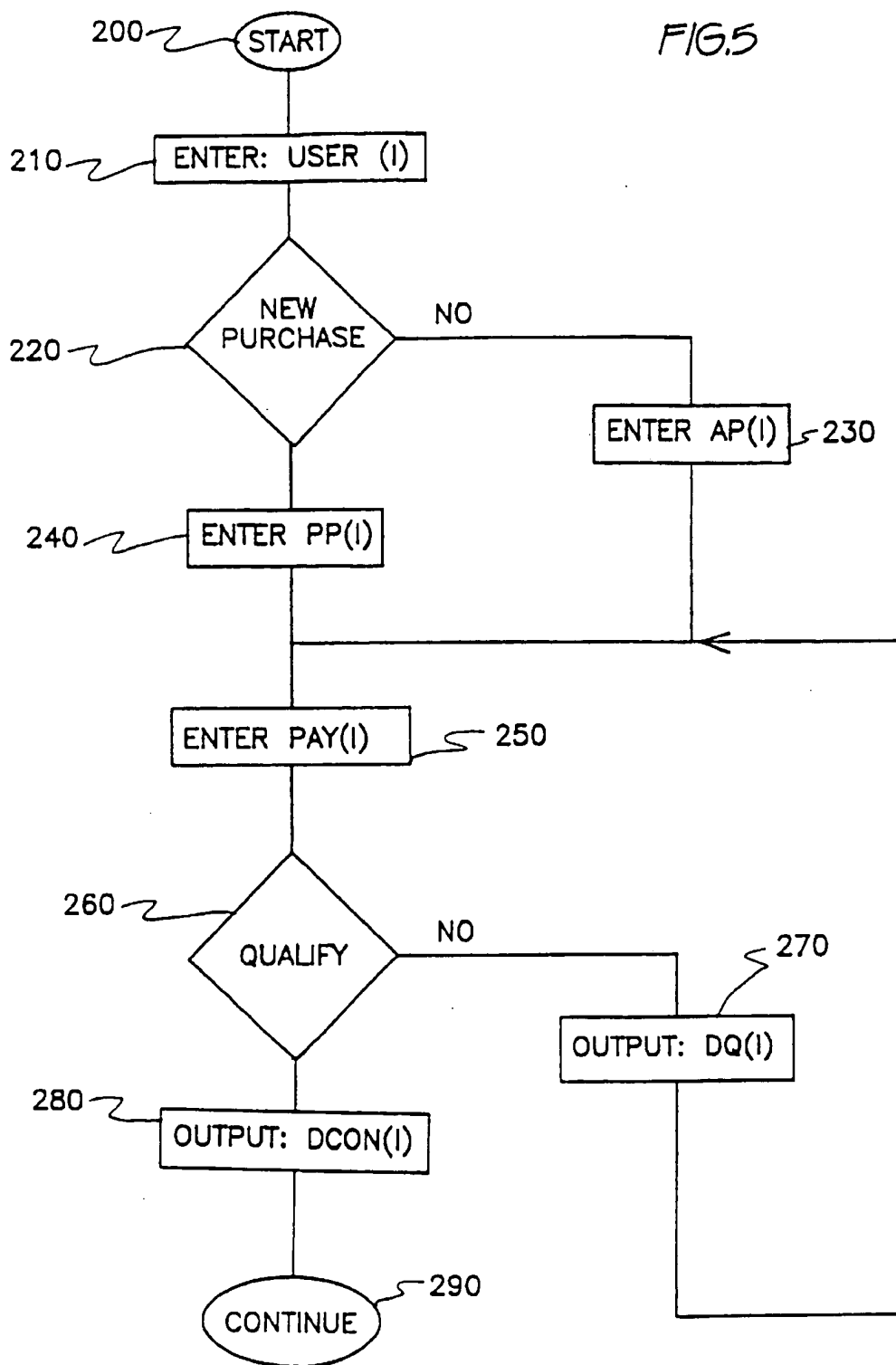
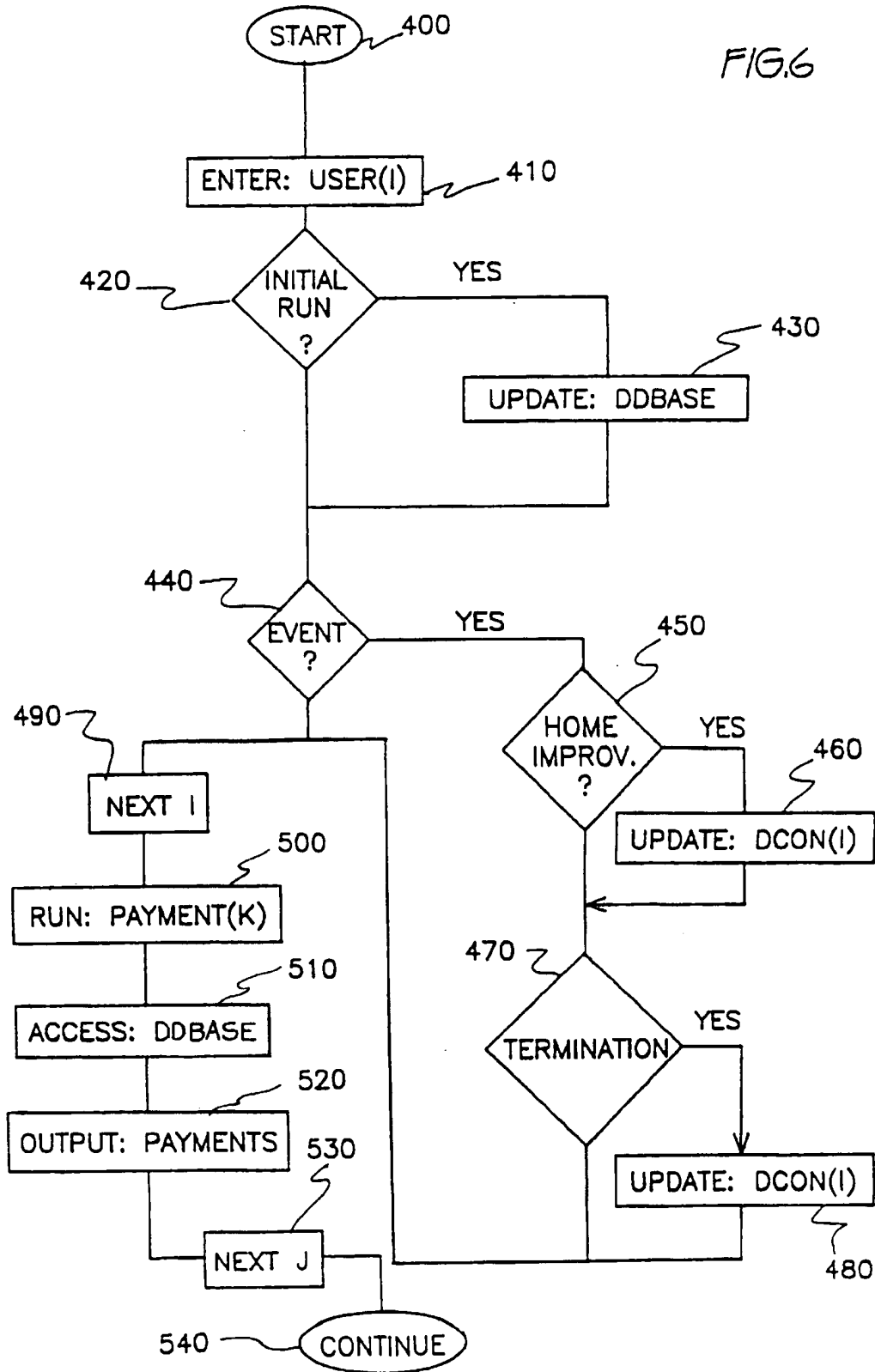


FIG. 6



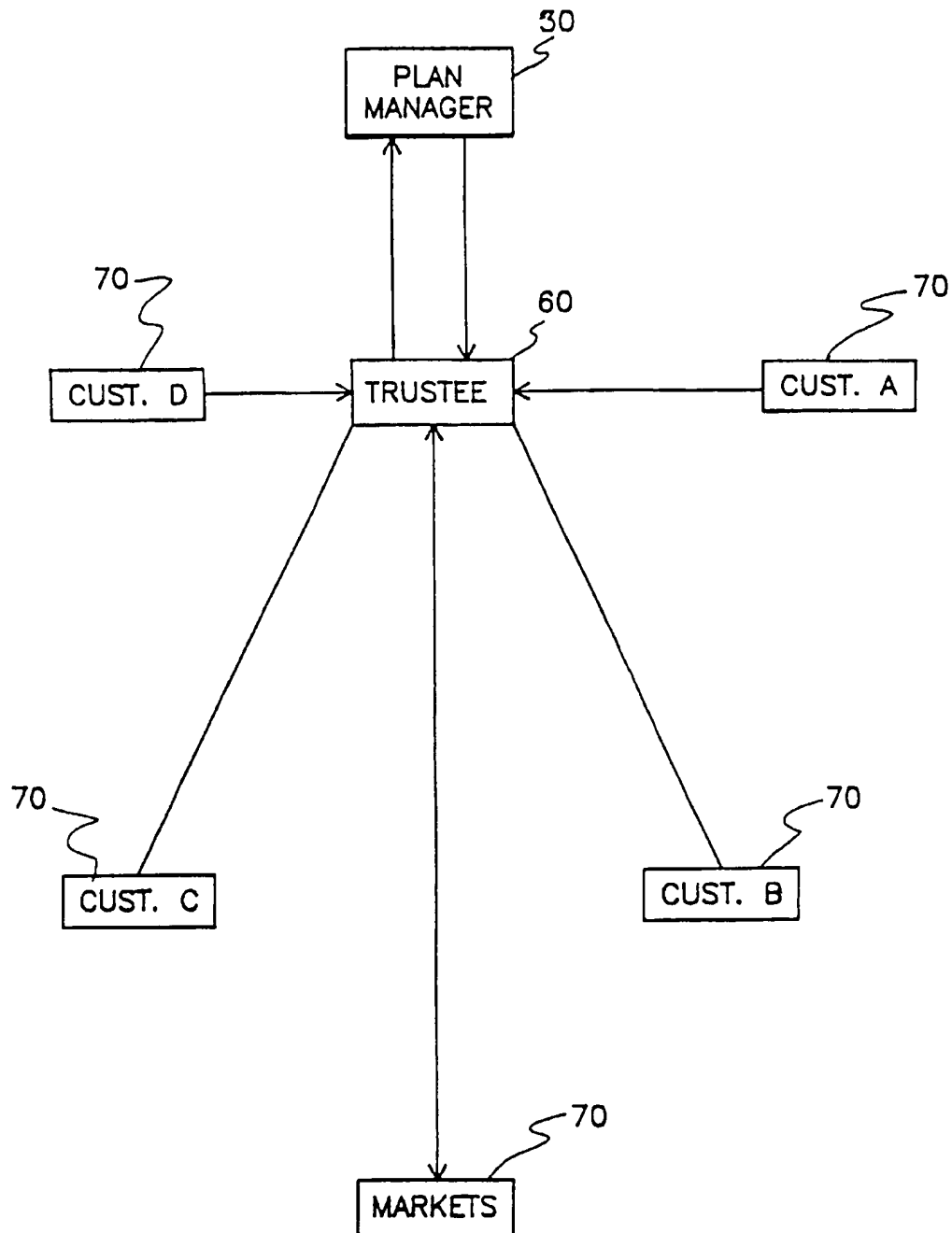


FIG.7



FIG. 8

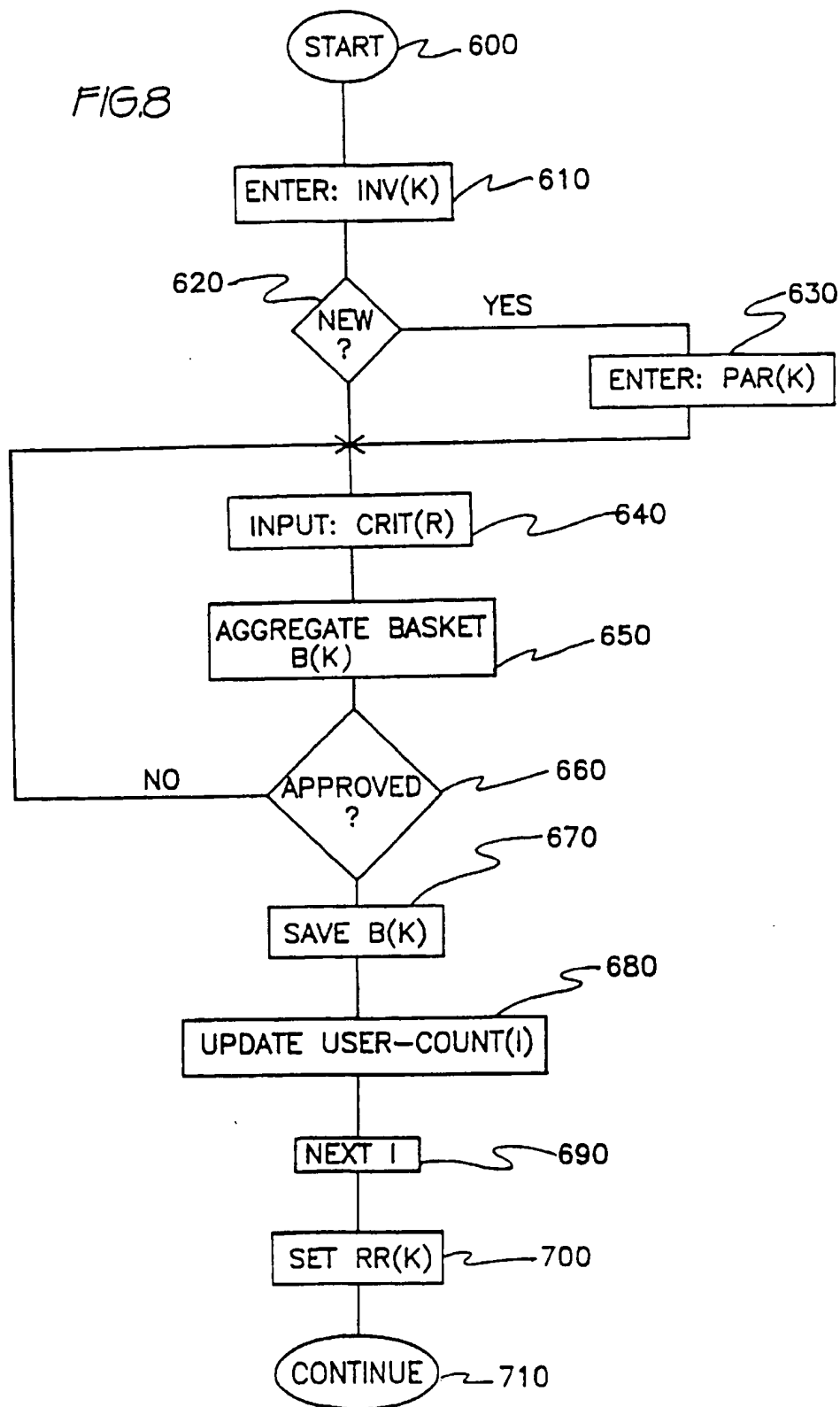
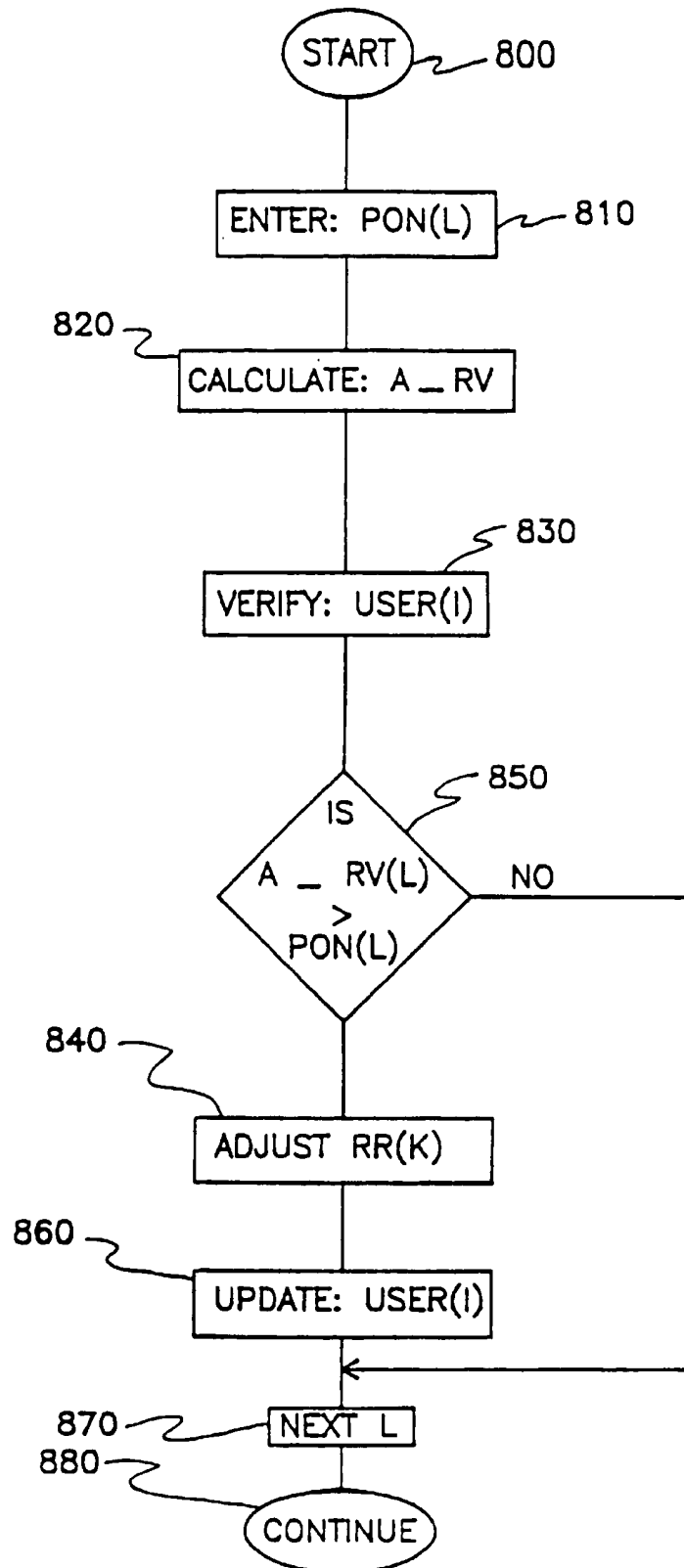
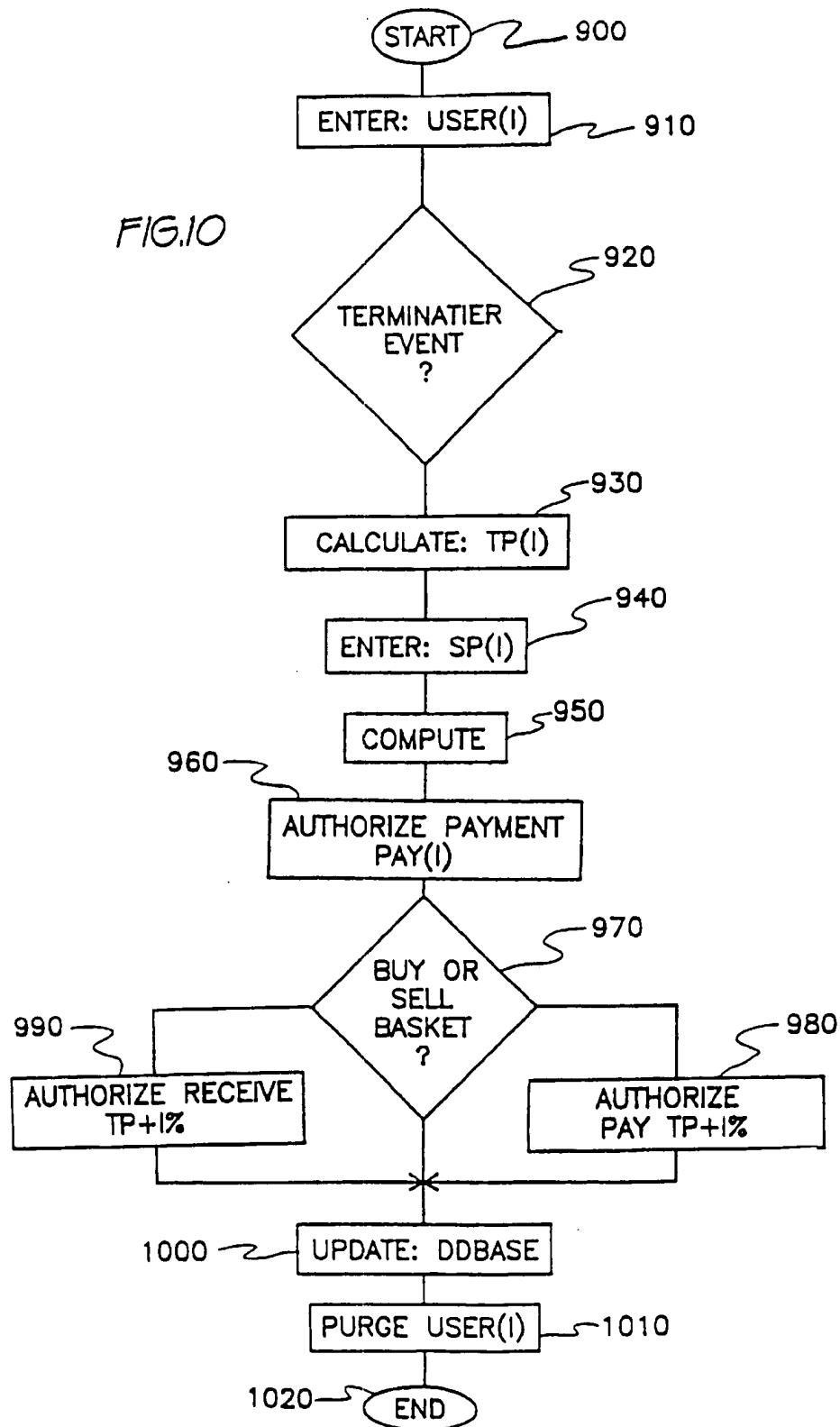


FIG. 9





## SYSTEM FOR MANAGING REAL ESTATE SWAP ACCOUNTS

The present invention generally relates to systems for managing a plurality of equity based accounts for reducing single market exposure and, in particular, a data processing system for implementing controlled dilution of select holdings of a plurality of individual accounts in accordance with plan directives.

### BACKGROUND OF THE INVENTION

For as long as investment has been passionately pursued, the watchword has been diversification. Holders of stocks are routinely told to expand their bond position so that a turn in the market may be better weathered. Likewise, holders of fixed income securities are warned of the ravages of inflation, which may be best warded off through high growth but volatile stocks. Indeed, most investors think in terms of portfolio management, where their portfolio is carefully balanced to consider offsetting positions in various securities. Health Care stocks may combined with oil stocks; cyclicals combined with growth—each combination with the intent to dilute the negative impact that may strike one sector of the economy.

Typical in most investor's assets is some form of real estate investment. Real estate, as an investment vehicle, has attributes that are quite distinctive when compared to other forms of securities such as stocks and bonds. There are several methods of investing in real estate. First, and most often recognized, is the direct purchase of land or property—to be managed by the investor. Many a real estate empire has come and gone based simply on purchasing properties using borrowed money, with the expectation that the value and income of the property will exceed the interest paid on the loan. This is known as leverage, and with its great potential for success is the possibility of sizable failure. Other forms of real estate investment exist, all of which can be characterized as holding, derivative interest in property. This is done either by separate corporations, limited partnerships (REITS) or other bifurcated vehicles designed to limit the investor from the extremes of good and bad turns in the real estate market.

Surprisingly, most investors have sizeable if not dominating real estate holdings—without appreciating the substantial position taken. This, of course, comes about through the purchase of a home which in many areas of the country involves hundreds of thousands of dollars of borrowed money with the borrowing at significant interest rates. Indeed, the average investor with a portfolio of \$50,000 may have a further position in real estate—due to their house—of another \$350,000. In this scenario, the investors real estate position is 85% of the total portfolio. This is routinely referred to as being real estate “heavy” and runs counter to the established principles of diversification.

The repercussions of this are clear; down turns in the real estate market will dominate and deplete an otherwise well-balanced and successful portfolio of stocks and bonds. This has happened in the late 1980s in many areas of this country and many other industrialized countries, sizably reducing the net worth of many investors; whereas, the equity markets in general have performed well, real estate, at best, has been a turbulent market. There is, therefore, a great incentive for investors to dilute their real estate exposure. On the other hand, there are presently no investment vehicles to reduce this exposure in a cost effective manner.

### OBJECTS AND SUMMARY OF THE PRESENT INVENTION

It is, therefore, an object of the present invention to provide a system to implement an investment vehicle that is

tied to the real estate market so as to provide investment participants the ability to reduce their exposure to the real estate market.

It is another object of the present invention to provide a data processing system that manages a plurality of separate accounts associated with participants to insure compliance with the terms of the transaction and to update portfolio positions accordingly.

It is yet another object of the present invention to provide a system to aggregate a plurality of diverse positions into a unified investment offering to large institutional investors.

The above and other objects of the present invention are realized in a novel data processing system designed to manage a plurality of real estate investment accounts. On the retail side of the operation, the system manager provides to a plurality of individuals with large holdings in real estate, such as homeowners, the opportunity to reduce their exposure to changes in the real estate market. The system implements individual contracts with each property holder, wherein a cash stream at a fixed rate is exchanged for a future stake in the appreciation of the property. In effect, the property holder is trading a stake in their real estate holding, expressed in percentage terms, for a fixed income return. The system parameters are engineered to maintain and manage the arrangement to the conclusion and thereby monitors and accepts interim modifications based on, e.g., home improvements, etc. Upon conclusion of the arrangement, the property is sold and the proceeds representing incremental appreciation of the property are then applied to the original owner and plan manager in percentages corresponding to their individual stakes.

In accordance with the varying aspects of the present invention, the plan manager in turn converts the foregoing agreements with the property owners into transactable securities for resale in the institutional markets. Pension fund managers desiring a position in real estate will commit funds corresponding to the contract with the agreement permitting sharing in the appreciation of the property upon sale thereof. The system tracks the transactions and balances the various positions to insure compliance with the terms and conditions of the arrangement.

The foregoing features may be more fully appreciated by review of a specific illustrative example of the present invention taken in conjunction with drawings of which:

### DESCRIPTION OF THE FIGURES

FIG. 1 is a block diagram of constituent participants in the transactions associated with the present invention;

FIG. 2 is a block diagram of the relationship between the plan manager and the various servicers as implemented in the context of the present invention;

FIG. 3 is a block diagram of the operative hardware used to implement the present invention;

FIG. 4 is a chart indicating graphically the division of assets accomplished in conjunction with the present invention;

FIG. 5 is a logic flow diagram for the initial operation of the present invention;

FIG. 6 is a logic flow diagram for on-going operations of the plan manager;

FIG. 7 is a block diagram of the institutional side of the transactions implemented in the context of the present invention;

FIG. 8 is a logic flow diagram for the implementation of system interface with institutional investors in accordance with the present invention; and

FIG. 9 is a logic flow diagram of the equilibrium function for the present invention.

FIG. 10 is a logic flow chart for termination event processing.

### DESCRIPTION OF THE PRESENT INVENTION

First, briefly in overview, the present invention is directed to a data processing system for managing a plurality of accounts and transactions relating to the controlled dilution of individuals exposure in the real estate market. Operation of the system is by the plan manager, who communicates to participating individuals through a network of mortgage servicers. These servicers collect the salient data from the applicants and convey the information to the plan manager, where a qualification check is made. This qualification is made based on a set of pre-determined system constraints implemented to contour the resulting aggregate position in real estate to a form marketable to institutional investors.

The plan manager (system) operates in real time, updating accounts pursuant to events that either change or terminate the relationship with the participating individuals. On the institutional side, the system manages the investment by a plurality of institutional investors into real estate derivative products tied to the value of the stake taken by the plan manager. In this context, system parameters are controlled through an interface trust linking the investors to the plan manager and system operator.

With the foregoing discussion in mind, attention is first directed to FIG. 1, wherein the plan manager and its operative communicative arrangement is presented. In this context, the individual participant is either a home buyer or home owner, 10, who operates in conjunction with a mortgage servicer (typically a bank) 20. The relationship may exist due to previous mortgage transactions, or is nascent.

The mortgage servicer offers a specific contract to the home buyer that exchanges a fixed income cash flow, based on a percentage of the property value for the same percentage stake in the future appreciation of that property at sale (termination of the contract). For example, a house has a purchase price of \$100,000; the owner can contract away 50% of the appreciation of this house in exchange for a fixed income on the \$50,000 (50% of the purchase price). In a sense, the owner is swapping the exposure of \$50,000 worth of real estate for a fixed return, similar to that of a bond.

In this arrangement, the system operator and plan manager are one and the same; all incoming new accounts collected by mortgage servicers are processed by the plan manager 30 and approved or disapproved by the plan manager. Although communication is by path "A"; the legal relationship, "B" is directly between the plan manager and the home buyer 10.

Turning now to FIG. 2, the plan manager 30 is the hub of a network of separate mortgage servicers 20, providing a plurality of real estate transactions paralleling the above example to numerous applicants, each through a discrete channel. The hubspoke structure permits simplified communications to each servicer. This is important as a single check for, e.g., \$1,400,000 is distributed to one servicer, to be redistributed to the individual plan participants by the servicer in accordance with the specific allocations dictated by their contract. It is, therefore, important that each servicer has a separate database for all the participants in their domain; while the plan manager has one unified database for all participants.

In this context, and now turning attention to FIG. 3, the plan manager employs a specific data processing system

having a central processing unit (CPU) 100 in communication with a real time database 110. The database can be maintained in one of many available storage systems, including optical or magnetic, with search and access controlled by the CPU in accordance with the governing software. As can be appreciated by the networked nature of the system, both local access 130 and remote access 120 to the system is important for day-to-day operations.

The nature of the transaction managed by the system is the swap of the future growth or shrinkage of a real estate asset for a fixed income return. This is presented graphically in FIG. 4, where a \$100,000 house is charted at  $T_0$ . At this initial point, the homeowner elected to swap \$50,000 (50%) of the house value as an investment, for a fixed return of 5% (5% on the \$50,000 per year). The homeowner begins collecting immediately, while living in the same house. At some future time,  $T_1$ , the house is placed on the market for \$120,000; if sold at this price, the incremental capital gains of \$20,000 is divided in half—50% for homeowner and 50% for the plan manager.

If, on the other hand, the owner dies at  $T_2$ , the house has lost value and is sold for \$90,000, and the plan manager owes the owner's estate \$5,000 (50% of depreciation). Alternatively, a separate arrangement may be offered wherein no downside or loss exposure exists for the plan manager.

System operation is program controlled. The program statements implement the various system functions on a real time basis or overnight basis, updating the database of accounts, approving new participants, and orchestrating the institutional side of the transactions. The controlling programs operate on hardware facilities compatible to the functions outlined herein, and the use of conventional hardware systems for processing and data storage is acceptable. The programming language isn't limitative so long as it is compatible with the selected operating system and hardware platform. Acceptable results will be achieved using a network of PC workstations tied together and linked to a file server or mini-computer.

The governing logic for controlling system operation is depicted in the flow charts as described hereinbelow. First, turning to FIG. 5, this flow chart depicts the initial application process for home buyer/owner as channeled to the system through the servicer. Logic starts conceptually at block 200 and continues to block 210 wherein the USER is given an identifying index variable "I". In this context, the USER(I) is the applicant for diluting a position in property presently owned or to be purchased. At test 220, the system determines whether a new purchase is contemplated.

If "NO", logic proceeds to block 230 and the system collects a select profile of data, the key of which is an independent appraisal of the property AP(I) so that a proper valuation may be entered and used for the requisite calculations. On the other hand, a positive response to test 220 will branch logic to block 240 and data is collected on the purchase price of the house PP(I) to be used for base-line valuation.

Continuing in FIG. 5, processing invariably proceeds to block 250 wherein the percentage and value of the property to be swapped by the applicant is entered by the System and combined with the other data in the USER(I) file. Using this data, the system then screens the applicant to confirm compliance with the qualification elements of the system. For example, the percentage of property to be "swapped" or invested must be between 25% to 65%, the property must be a primary residence of 1 to 4 units; also, the property cannot

be a co-op, land or used for investment purposes by the applicant. The minimum amount to be swapped is \$30,000 or other applicable value. If the applicant fails for any of these or other reasons, the system responds negatively to test 260, and logic proceeds to block 270, where a report on the failed application and reasons therefor is printed as DQ(I).

Assuming applicant's data meets the specifications of the system, test 260 is answered in the affirmative and logic branches to block 280 where the specifics of the CONTRACT are printed and transmitted, via the servicer, back to the applicant for execution. System logic then proceeds with the next applicant in the same fashion (continue block 290), indexing the applicant counter:

$I=I+1$

In accordance with the above process, the system quickly develops a substantial database of applicants, which require periodic updating pursuant to the terms of the transactions. This process is accomplished as described in FIG. 6. Specifically, logic begins at Start block 400 and continues to block 410 for entry of USER(I,J) wherein the J index variable tracks the time period of the entries.

The system first tests whether the USER(I,J) is an initial run, test 420; if so, logic branches to block 430 and the main database, DDBase, is updated with the new account information. Otherwise, logic proceeds to test 440 wherein the system tests for an EVENT of consequence. Events of concern are typically a payment cycle, a sale of the house or an improvement of the house. In fact, affirmative response to test 440 causes system inquiry as to the event, via test 450, wherein a home improvement is discerned. A home improvement is important, as it represents the owner's investment into the equity of the previously divided property. To the extent that the improvement increases the ultimate purchase price of the house, the owner and not the system manager, should reap the reward.

To insure this outcome, block 460 rewrites the original Contract, DCON(I), to reflect the enhancements associated with the home improvement event submission. In either path, logic continues to test 470 which checks for a Termination event, i.e., the termination of the contract and the sale of the house at market price. If a termination event has occurred (and these include foreclosure, death, etc.), the system accesses the relevant file DCON(I) and processes the records accordingly, block 480.

The foregoing processing is repeated for this cycle for each participant, I, by loop processor Next command of block 490. At the end of the period, a payment run is made, block 500, wherein aggregate payment to the servicer(s) is calculated, the database updated, block 510, and the funds transferred, block 520. Processing is then repeated for the next period by index variable J, via loop processor Next command of block 530.

The above discussion has focused on the retail side of the processing, wherein the plan manager assumes the contractual obligations associated with swapping fixed income for a percentage of market appreciation of the participants' houses. By doing this, the plan manager develops an investment position highly exposed to changes in the real estate market and, in essence, is holding a portfolio of concentrated real estate investments in the form of contract rights. These contract rights are, however, readily assignable and, therefore, easily transferred, traded and exchanged. Therefore, consistent with the desire to diversify and otherwise exchange its position in real estate for other assets, the plan manager is ideally positioned to separately trade the obligations corresponding to the various contracts within the

database portfolio. These trades, however, are accomplished on the institutional side of the market, with the primary customers and traders taken from large pension fund managers having a desire to invest in real estate, again as a form of diversification.

To effect the institutional side of the system, the plan manager operates through a trustee wherein a swapping arrangement may be accomplished in a manner similar to that discussed above. More particularly, and referring to FIG. 7, the plan manager 30 is linked to a trust 60 for holding transaction supporting assets, like U.S. Treasury bonds. In turn, the trust communicates with various large pension funds 70, exchanging economic interest in bonds for economic interest in the real estate market. For example, CUST 15 A will exchange the exposure of \$100 million of 6.25% coupon 30-year treasuries for \$100 million of a specified real estate basket. The basket is defined by properties selected in terms of house size, location and type. The plan manager receives the coupons on the treasuries and exchanges them for a lower fund coupon. When a home in the basket is sold, the treasuries are returned plus any appreciation in the house price.

As presented in FIG. 8, processing on the investment side begins with Start block 600 and continues to block 610 for the entry of account data on the Kth investor, INV(K). By this method, each individual investor is given the opportunity to take a selective stake in a real estate investment and the system tracks the plural investor accounts maintained within the database. Continuing in FIG. 8, test 620 determines whether the Kth investor is "new"; if "YES," the system enters that investor's unique parameters, PAR(K), at block 630. Logic proceeds to block 640 where the investor's selective criteria for its stake in terms of location, house style, price bracket, etc. are entered the system then develops an aggregate basket of houses complying with this criteria, designated B(K), at block 650.

The system then determines at test 660 whether this aggregate basket conforms to previously established guidelines; if not, logic is returned to reset the criteria parameters. Approval of the aggregate directs system logic to block 670 wherein the basket parameters are saved. Importantly, the system then updates a separately tracked USER(I) counter(I) indicating the net sales of a stake for each property in that basket. For example, a stake in one house may be sold five times and bought three times—M would thus, equal Z. Thereafter, at block 700, the system establishes the associated rate of return, RR(K) for that particular basket.

As can be recognized from the above, the plan manager must rationalize in real time, continually changing investment positions on both the retail and institutional side with the objective to maintain a balance between each side, i.e., to assure that the exposure to the real estate market taken on the retail side is for the most part taken up by institutional investors, thereby retaining a relatively risk free position. This can only be accomplished by unified processing of the various incoming investment positions and adjusting the qualifying constraints in the system so that balance is re-established. For example, to the extent that four bedroom houses are in demand on the institutional side, the system must reconfigure its retail qualifying terms to insure sufficient supply of four bedroom exposure.

The inventive system continually updates the relative position of each side of the transaction in accordance with the commands delineated in FIG. 9. Logic conceptual starts at Start block 800, and continues to block 810 wherein the current convergence criteria, PON(L) is accessed and entered. The system then calculates (block 820) the current

aggregate position, A\_RV. Specifically, A\_RV represents the net aggregate position taken for each house for a given territory (state, county or even country). Please note that the A\_RV position will include both positive and negative positions, as the system permits investors to take an inverse real estate investment position. This position is explicitly verified on a per house basis (block 830).

At test 840, the absolute value (in dollar terms) of the net position by the system is compared to the convergence criteria PON(L). If within the criteria ("NO" to test 840), logic proceeds to block 870. If "YES", then the direction of imbalance is discerned, and the appropriate qualification parameters adjusted to rebalance the system at blocks 850 and 860, respectively. This is then incremented for the next time frame basket L.

Turning now to FIG. 10, the system rationalizes a termination event for investors that have a basket of houses which include the corresponding property. More particularly, logic begins at Start block 900, followed by block 910 wherein the USER(I) file is accessed at test 920, checking for the existence of a termination event. A negative response drives logic to the end of this logic sequence and the (I+1) USER. A positive response to test 920 directs logic to block 930 wherein the terminal payment, TP(I), is calculated based on the incremental time period between payment intervals pursuant to the contract. Thereafter, the sales price SP(I) for the property is entered at block 940. The system then computes the net value of the contract to the system proprietor at block 950; to the extent any amount is due to the USER(I), this amount is authorized for payment at block 960.

At test 970, the system determines, based on the USER counter, how many times the property undergoing a determination event has been bought or sold. For each instance of a purchase by an investor, logic branches to 980 and the system authorizes payment TP+INT(I). For each instance of a sale by an investor, logic proceeds to branch 990 wherein the system is authorized to receive payment TP+INT(I). Logic culminates at block 1000 wherein the DDBase is updated and block 1010 wherein the system is purged of the USER(I) file.

The above-described arrangement is merely illustrative of the principles of the present invention. Numerous modifications and adaptations thereof will be readily apparent to those skilled in this art without departing from the spirit and scope of the present invention.

What is claimed is:

1. A system for managing a plurality of accounts that correspond to a selected position in a future appreciation of a select real estate asset comprising;

data entry means for receiving and processing a select set of parameters corresponding to an applicant for exchanging a position in real estate for a return tied to a non-real estate asset;

database development means for receiving plural account participants and attendant data thereon and storing said data in an addressable database;

participant qualification means for selectively qualifying real estate properties as suitable participants in said system;

system management means for processing incoming participant event data and updating said database in accordance therewith; and

investment pool processing means for collecting data on said real estate assets and processing said data to form one or more investment pools, wherein said pools

include plural real assets each having at least one common property characteristic.

2. The system of claim 1 wherein said parameters includes a description of a residential building, and a select percentage of ownership interest in the change of value of said building at a future point in time.

3. The system of claim 2 wherein said return on a non-real estate asset is a fixed income to accrue until sale of said building.

4. The system of claim 3 wherein said database includes updated files on each account in terms of percentage ownership in said building.

5. The system of claim 4 further comprising real processor means for selective entry of events for modulating or terminating said percentage of ownership interest.

6. A system for processing data corresponding to a plurality of individual investor accounts:

account processor swap means for converting account parameters into a current income stream and a future correspondence to a valuation change of a select real estate asset,

account processor database means for storing and tracking a plurality of separate accounts to effect a net aggregate position and to update said future correspondence to a valuation change due to intervening events,

account processor distribution means for distributing a stake in said future correspondence to a valuation change to real estate investors, wherein said distribution means balances a portfolio of investments to insure limited investment exposure by a system manager; and

investment pool processing means for collecting data on said real estate assets and processing said data to form one or more investment pools, wherein said pools include plural real estate assets each having at least one common property characteristic.

7. The system of claim 6 wherein said swap means included qualification means to regulate system manager exposure.

8. The system of claim 7 wherein said distribution means includes exposure limit to discern requisite change in account qualification terms.

9. The system of claim 8 wherein said future correspondence is established by a system characterized termination event.

10. The system of claim 6 wherein said intervening events include home improvements.

11. A data processing method for managing a plurality of individual accounts wherein each account corresponds to a participant, wherein said participant owns a real estate asset, said method comprising the steps of:

a) creating an account database of separate participant accounts wherein said database comprises a plurality of account entries and each account entry includes participant information stored in physical memory locations in an addressable memory means, said participation information comprises data on said participant and said real estate asset owned by said participant;

b) inputting data on a periodic and/or event driven basis wherein said inputted data is stored in system memory and includes transactional information relating to one or more of said participant accounts;

c) processing said inputted data in accordance with program controlled logic defining an investment equity contract relationship, exchanging a first exposure in said real estate asset corresponding to a change in value thereof, for a defined return, wherein said processing of

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said inputted data provides a change in one or more parameters associated to said participant account;

d) creating an aggregate investment pool of real estate assets each having at least one common property characteristic; and

e) updating said account database with said changed parameters to support interim report generation and select output of one or more asset activities wherein asset activities include payment of funds to an account participant, and collection of funds pursuant to a real estate asset sale.

12. The method of claim 11 wherein said data processing step includes use of a program controlled digital computer to update account parameters in accordance with periodic events.

13. The method of claim 11 wherein said periodic events includes the transfer of cash or cash equivalent stream to a participant in accordance with stored parameters delineating a fixed return for an exposure to a portion of a defined real estate asset.

14. The method of claim 11 wherein said database entries include descriptive data entries on said underlying real estate assets.

15. The method of claim 11 further comprising the step of inputting investor data comprising data on an investor position in one or more pools of real estate exposures.

16. A system for managing a plurality of real estate equity accounts and a plurality of real estate investor accounts comprising:

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a) a first database means for storing in electronic form a series of data entries corresponding to one or more real estate assets;

b) a second database means for storing in electronic form a series of data entries corresponding to one or more investors participating in defined investment relationships in said real estate asset exposures;

c) data processing means for periodic manipulation of said data entries in said first and second database to track and update said databases in accordance with controlling logic, wherein said controlling logic defines a return of income to a group of real estate asset owners and a participation by said investors corresponding to a change in asset value over time, wherein said second database means includes record storage means for aggregated pools of said real estate assets grouped based on at least one common property characteristic.

17. The system of claim 16 wherein said data processing means tracks and updates said plural accounts in accordance with event driven input to said system.

18. The system of claim 16 further comprising output corresponding a periodic payment of a fixed amount to each real estate owner.

19. The system of claim 18 wherein said output includes a periodic statement referencing said payment.

\* \* \* \* \*





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**Roberts et al.**

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(45) **Date of Patent: Sep. 18, 2001**

(54) **METHODS AND INVESTMENT INSTRUMENTS FOR PERFORMING TAX-DEFERRED REAL ESTATE EXCHANGES**

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(52) U.S. Cl. .... **705/36; 705/35; 705/37; 705/38**

(58) Field of Search ..... **705/36, 37, 38, 705/39, 35**

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*Primary Examiner*—Vincent Millin

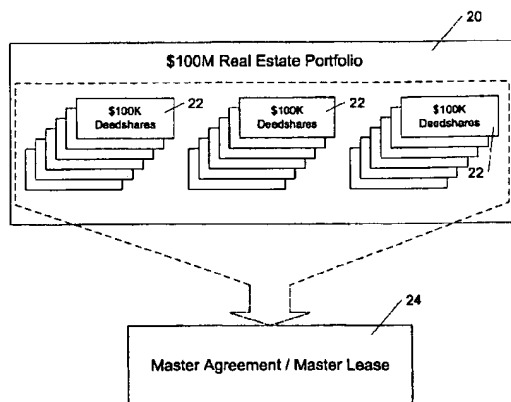
*Assistant Examiner*—Pedro Kanof

(74) *Attorney, Agent, or Firm*—Fish & Neave; Nicola A. Pisano

(57) **ABSTRACT**

Methods and investment instruments for investing in real estate are described wherein a portfolio of investment real estate is divided into a plurality of tenant-in-common deeds of predetermined denominations, and which are subject to a master agreement and master lease to form "deedshares." Holders of the deedshares receive a guaranteed income stream from the master lease and yearly depreciation, without having to maintain or manage the real estate. The holders of deedshares are subject, under the master agreement, to a mechanism that enables the master tenant to purchase, or arrange for the purchase of the deedshares at fair market value (or some other calculable value) at the end of a specified term. Because the deedshares qualify as interests in investment real estate, they are eligible for tax-deferred treatment under §1031 of the Internal Revenue Code.

**41 Claims, 5 Drawing Sheets**



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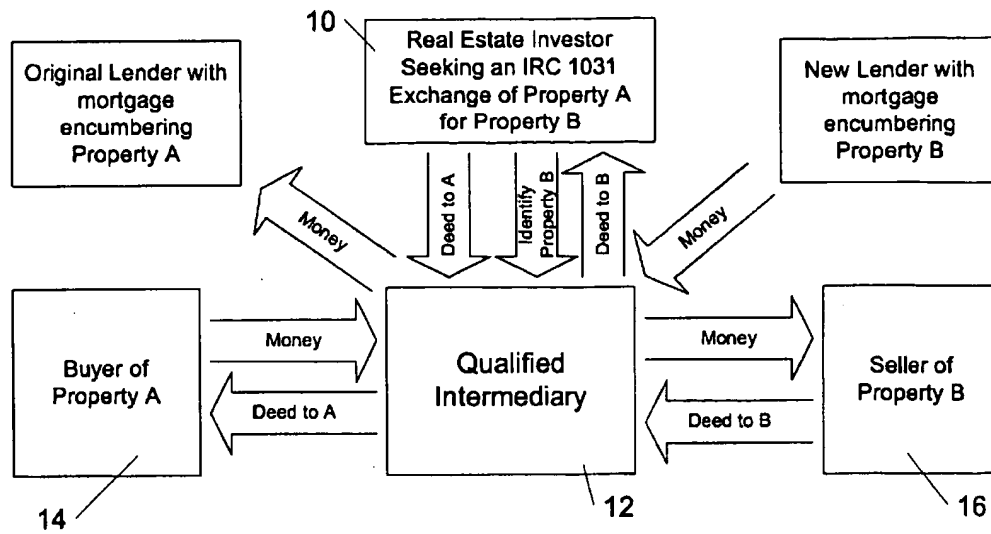


FIG. 1 (Prior Art)

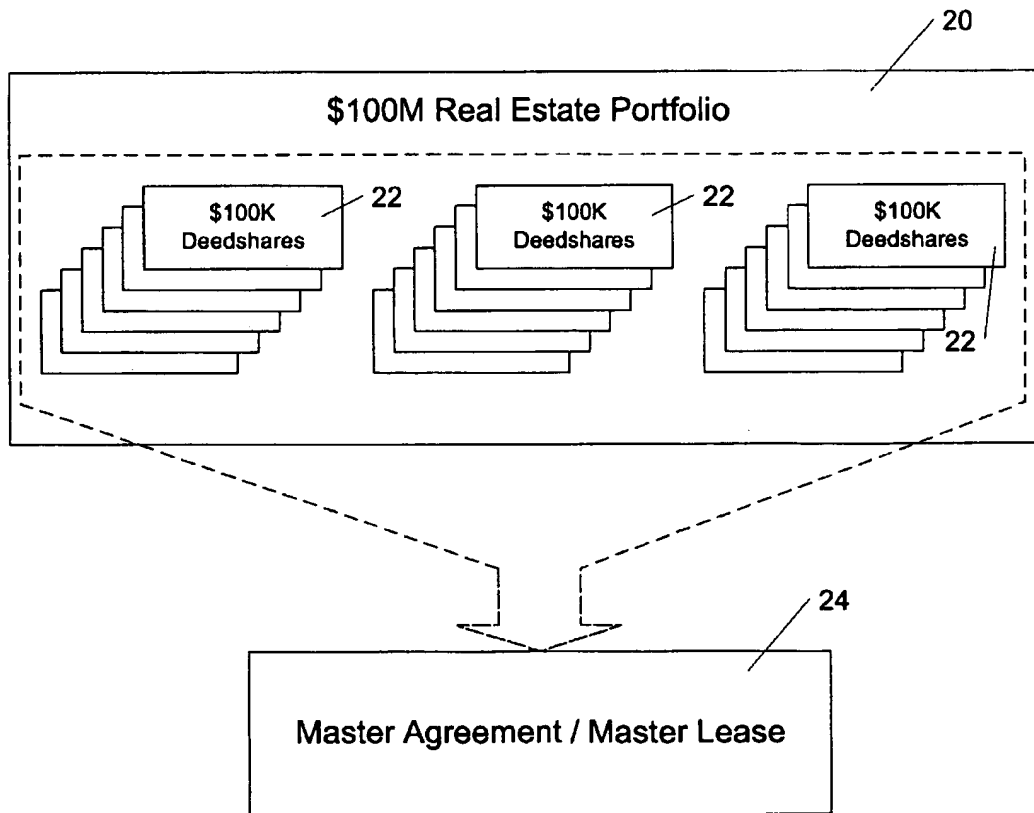


FIG. 2

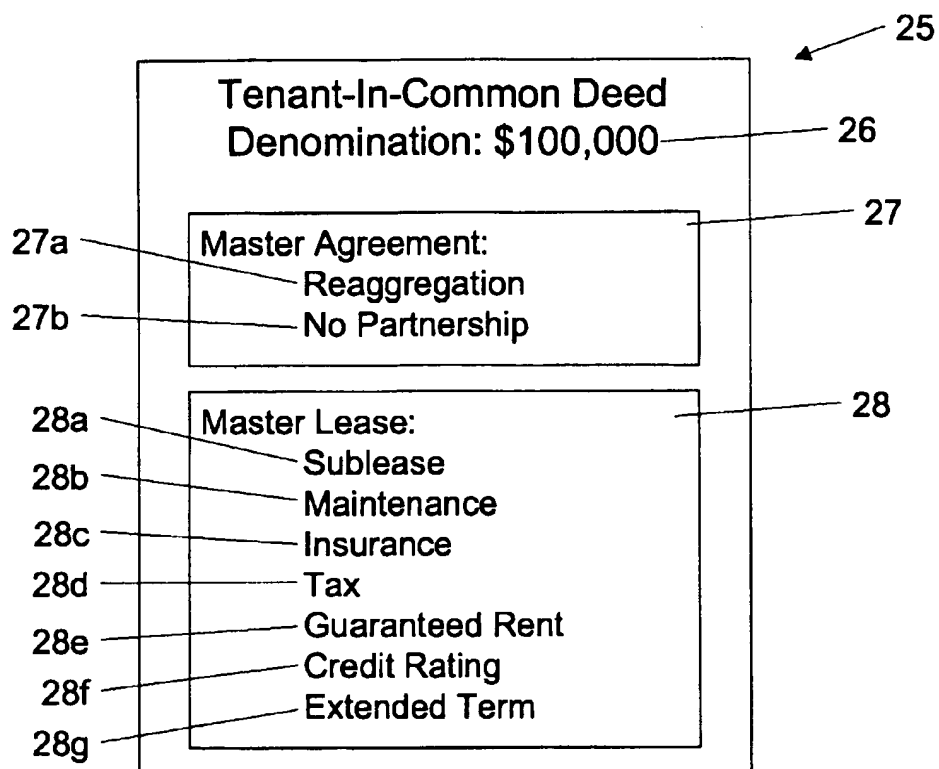


FIG. 3

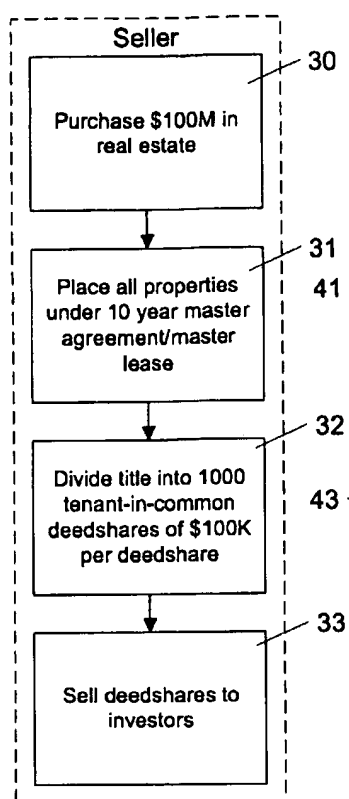


FIG. 4A

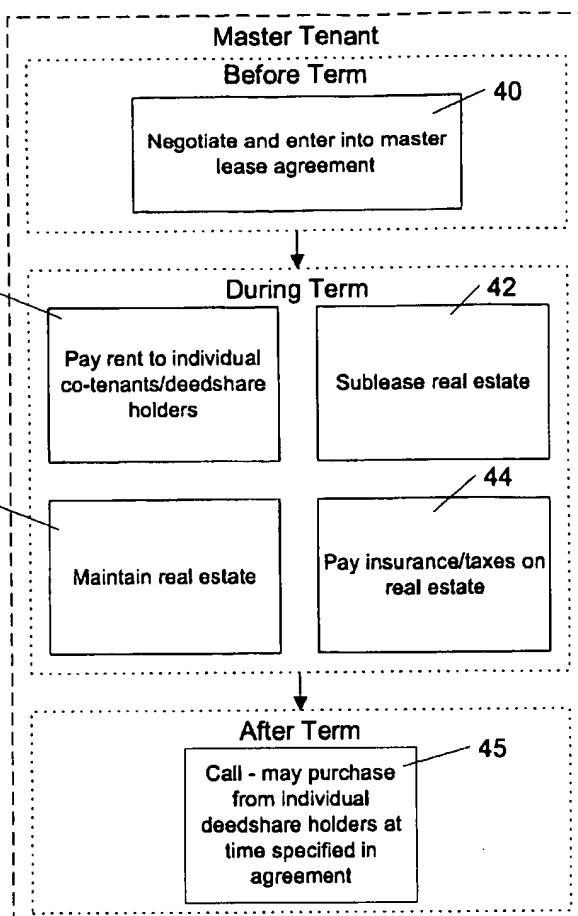


FIG. 4B

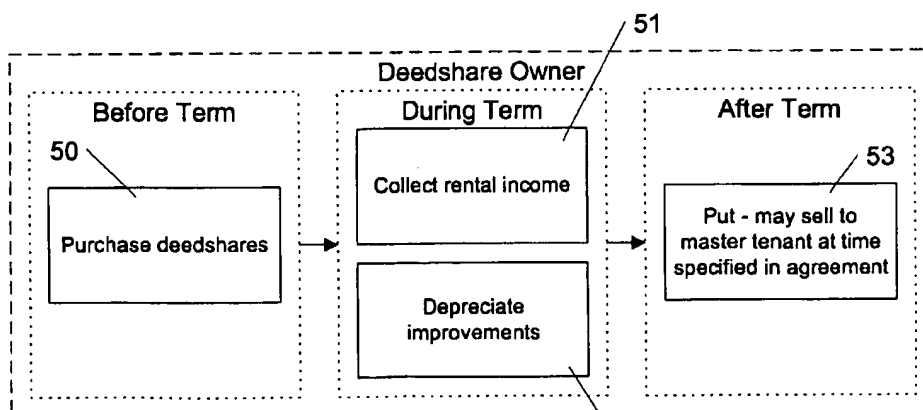


FIG. 4C

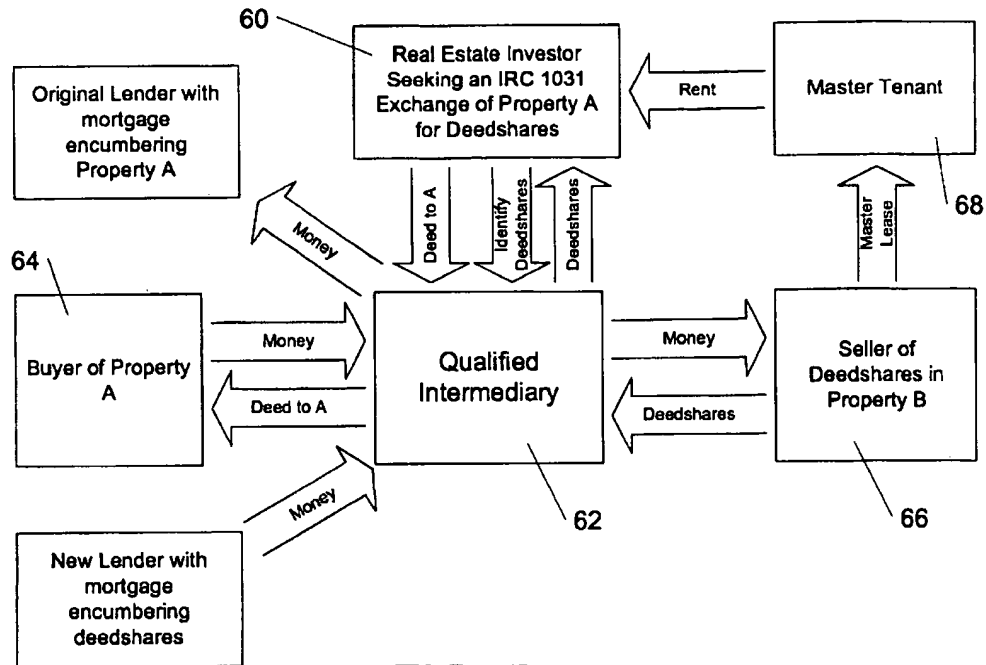


FIG. 5

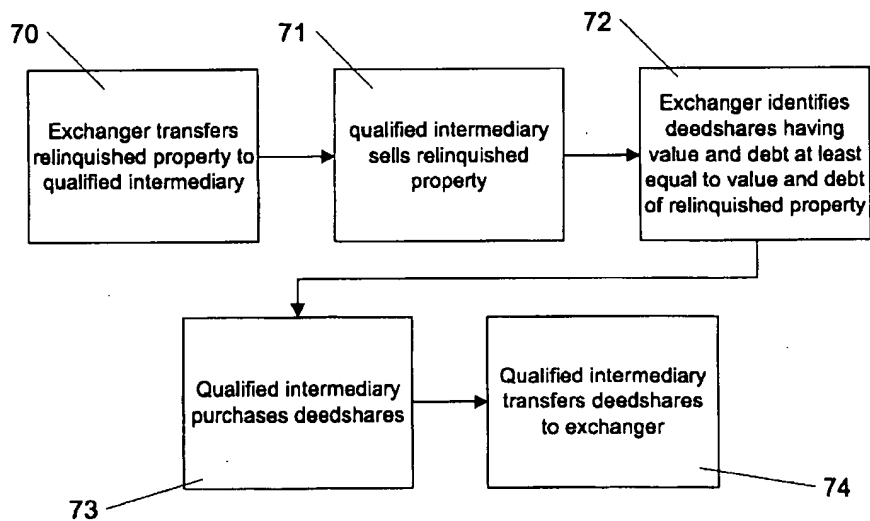


FIG. 6

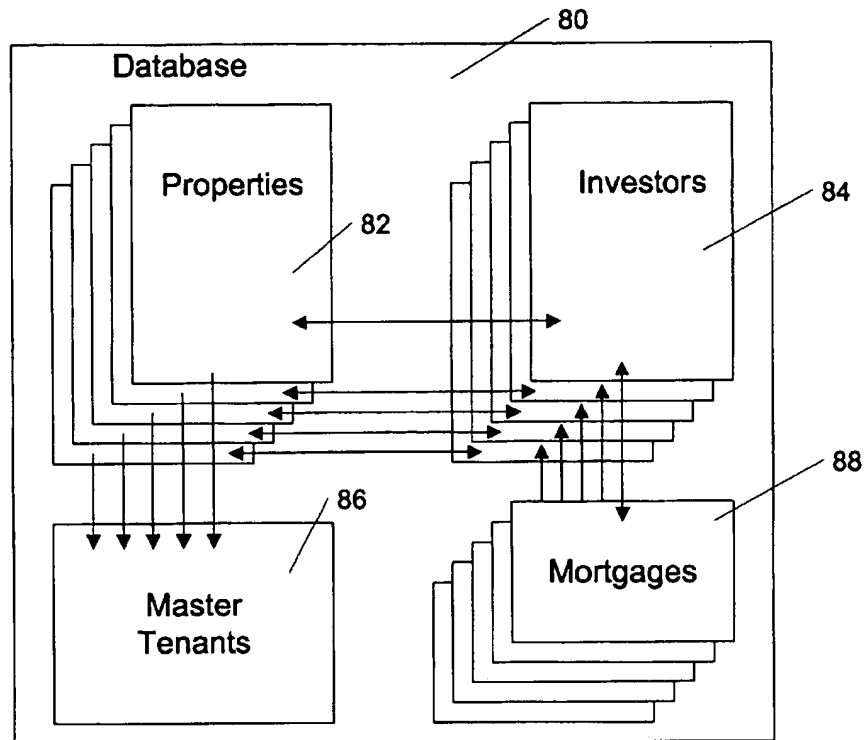


FIG. 7

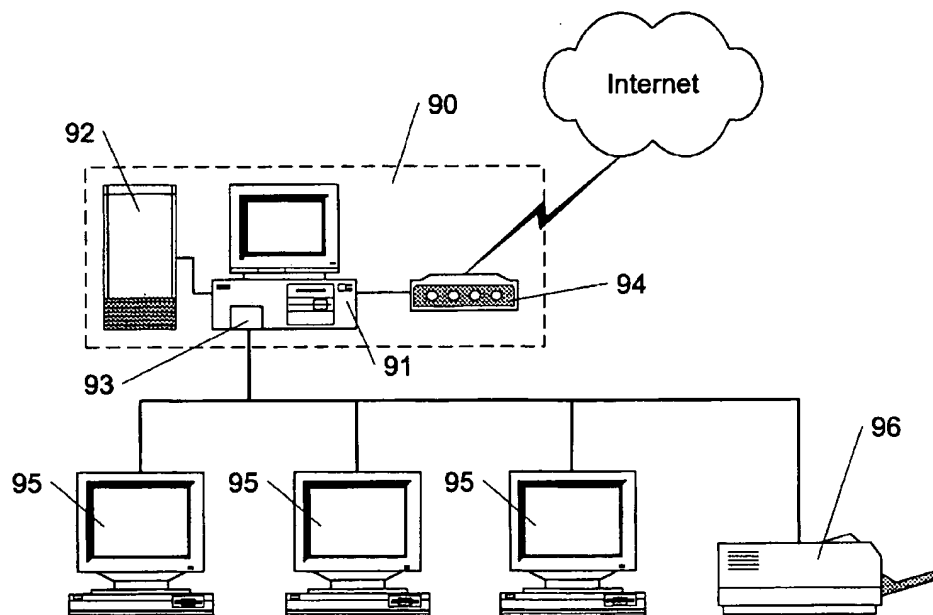


FIG. 8

# METHODS AND INVESTMENT INSTRUMENTS FOR PERFORMING TAX-DEFERRED REAL ESTATE EXCHANGES

## FIELD OF THE INVENTION

The present invention relates generally to methods and investment instruments for performing tax-deferred real estate transactions, and more particularly to methods and instruments for performing tax-deferred exchanges of investment real estate under 26 U.S.C. §1031.

## BACKGROUND OF THE INVENTION

As the population of America ages, the investment concerns of Americans are changing. Mature investors desire investments that provide a safe, steady income stream. Such investors also generally desire liquidity, so that their investment interests can easily be sold or rearranged. Additionally, investors generally do not want to actively manage their investments.

Mature investors also may have numerous concerns related to inheritance. For example, most mature investors would like their investments to be divisible, so that they may be easily divided among heirs. Additionally, these investors may want their estates to be able to sell part of their investment holdings to pay estate taxes.

Investment real estate has difficulties meeting many of these desires. Generally, small to mid-sized real estate holdings require active management to return a steady income. Furthermore, if an investor divides the title to a small real estate holding, such as a store, or a single building, the pieces generally have less value than the whole and are difficult, expensive and time-consuming to sell. Many of the foregoing concerns affect investors of all age groups, particularly in view of the challenging lifestyles of most modern American workers and professionals.

Despite the foregoing difficulties, however, a large amount of money is currently invested in real estate that is either income-producing or held for investment. In 1996, for example, the total value of commercial real estate in the United States was estimated at approximately four trillion dollars. Much of this real estate (approximately \$2.75 trillion in 1996) was privately owned and held by individuals and corporations. A sizable fraction of these holdings are owned by small to mid-sized real estate investors (i.e., those having holdings between \$500,000 and \$10 million).

Such small to mid-sized real estate owners can sell their real estate and put their earnings into investments such as high grade bonds or bond funds, which provide the kind of liquidity, and relatively safe and steady income that many investors desire. Unfortunately, selling investment real estate or commercial real estate that has appreciated in value may result in severe tax consequences. For example, a property that was originally purchased many years ago for \$50,000, and sold for \$450,000, has a taxable gain of \$400,000. Under the current tax code, as much as 28% of this gain (or \$112,000), is payable as federal tax.

Title 26, Section 1031 of the Internal Revenue Code (hereinafter "IRC § 1031") permits deferral of the taxes on investment real estate by reinvesting in other investment real estate, subject to several conditions. Thus, for example, the owner of a small store could use a "1031-exchange" to defer taxes when he or she sells the store and reinvests the proceeds in an apartment building. To receive all of the benefits from an IRC § 1031 exchange, the new property (the "replacement property") must have both value and debt

that are equal to or greater than the value and debt of property being sold (the "relinquished property").

Thus, if the relinquished property was sold for \$450,000, and was subject to a \$100,000 mortgage, the replacement property must be purchased for at least \$450,000, and must be subject to at least \$100,000 in debt. If the value or debt of the replacement property is less than that of the relinquished property, taxes are payable on the difference, known as "boot".

IRC § 1031 also imposes certain time limits for completion of the transaction. Once the relinquished property has changed ownership, the owner of the exchanged property (the "exchanger") has 45 days to identify replacement property choosing either the three-property or the 200% rule, and a total of 180 days to close on the replacement properties. If these time limits are not met, the transaction is not deemed to be an "exchange," and gains from the sale are subject to taxation. Additionally, the exchanger cannot exercise control, either direct or indirect, over the proceeds of the sale of the first property. For this reason, IRC §1031 exchanges generally are handled by a third party, a so-called "qualified intermediary," who sells the relinquished property on behalf of the exchanger, holds the proceeds of the sale, acquires the replacement property that has been designated by the exchanger, and transfers title to the replacement property to the exchanger.

IRC §1031 exchanges help in meeting the concerns of many investors by permitting a tax-deferred exchange. For most owners of high-maintenance investment or commercial real estate, or investment real estate without a safe, steady income stream, however, it is difficult to locate an acceptable replacement property requiring less active management and that produces a more steady income stream. Also, because the investment is still in real estate, other concerns of investors, such as liquidity and divisibility are not addressed by the availability of IRC §1031 exchanges. Furthermore, many attempted IRC §1031 exchanges fail, with devastating tax consequences, due to difficulties in identifying and closing on suitable replacement properties within the time limits imposed by the statute.

Numerous attempts have been made to provide real estate investments that are transferable, have a steady income stream, require low management effort, and are divisible. One way of gaining these benefits is by investing in a real estate investment trust (a "REIT"). A REIT is a company that buys, sells, manages, and develops real estate or real estate mortgages on behalf of its investors. Shares in a REIT may be purchased, or (for some REITs) acquired indirectly in exchange for property, as described below. These shares are often publicly traded on major exchanges, and have characteristics similar to the characteristics of shares in any other company. For example, the shares are easy to liquidate, and often provide a reasonably steady stream of income through dividends.

A real estate investor goes through a two-step process if he or she seeks to use a REIT to take advantage of a tax-exempt transaction. First, the investor contributes the real estate property to a partnership owned by the REIT. Next, at such time as the investor elects to liquidate his or her interest, he or she exchanges the partnership interest for REIT shares. The second exchange is a taxable exchange and the investor may not utilize IRC §1031 to acquire other real estate in a tax exempt transaction. Once the investor completes the first step the only option the investor has is to acquire REIT shares in a taxable transaction.

Basically, shares in a REIT are simply shares in a company—not a deeded ownership interest in specific com-



mercial or investment real estate. Thus, individual shareholders in a REIT may not be able to exert much control over the size or investment quality of the holdings of the REIT over a long term. Also, the market value of the REIT shares may fluctuate differently than the market value of the assets owned by the REIT. In addition, an IRC §1031 exchange cannot be used to defer the taxes on an exchange of investment property for shares in a REIT. REITs therefore do not provide a way to convert an interest in real estate into an investment with more desirable characteristics without incurring significant market risk and tax consequences.

Another way of spreading the risk and management burden of a real estate investment is to join a group of investors to purchase real estate as tenants-in-common. In arrangements of this sort, each of the tenants-in-common typically receives an undivided part interest in the real estate that is the subject of the transaction, in proportion to the amount of his or her investment. The tenants-in-common also enter into an agreement providing for exercise of joint control over the property, and for sharing the maintenance and management costs.

While the foregoing approach may provide a steady income stream from a real estate investment with certain favorable attributes, such arrangements have several disadvantages. First, it may not be easy to liquidate an undivided part interest in real estate due to the specific nature of the underlying assets. Additionally, depending on the number of investors involved and the nature of the agreement under which control is exercised over the property, such an arrangement may be deemed by the Internal Revenue Service to constitute a partnership. Since IRC §1031 specifically excludes exchanges of interests in partnerships, it is not possible to do a tax deferred exchange into this type of arrangement.

In view of the foregoing, it would be desirable to provide methods of investing in real estate that provide safety, a steady income stream, divisibility, ready liquidity, and no involvement in management of the property.

It would further be desirable to provide an investment instrument and methods for exchanging investment or commercial real estate that provide safety, a steady income stream, divisibility, ready liquidity, and no involvement in management of the property, and that meet the requirements of IRC §1031, thereby enabling a tax-deferred exchange.

It still further would be desirable to provide an investment that permits substantial tax-deferral benefits, that may be readily alienated, and that provides a steady and relatively low risk return.

It even further would be desirable to provide a system for implementing methods that enable investors to realize substantial tax-deferred benefits in accordance with IRC §1031.

#### SUMMARY OF THE INVENTION

It is an object of the present invention to provide methods and an investment instrument for investing in real estate that provide safety, a steady income stream, divisibility, ready liquidity, and no involvement in management of the property.

It is another object of this invention to provide investment instruments and methods for exchanging investment or commercial real estate for an interest in investment in specific real estate that provide safety, a steady income stream, divisibility, ready liquidity, and no involvement in management of the property, and that meet the requirements of IRC §1031.

It is a further object of the present invention to provide an investment that permits substantial tax-deferral benefits, that

may be readily alienated, and that provides a steady and relatively low risk return.

It is a still further object of the present invention to provide a system for implementing methods that enable investors to realize substantial tax-deferred benefits in accordance with IRC §1031.

These and other objects of the present invention are achieved by creating a new type of investment instrument, a "deedshare," that represents both a tenant-in-common interest in real estate, and provides the divisibility and liquidity of a traditional security, such as a bond. Deedshares created in accordance with the principles of the present invention preferably are available in predetermined denominations, provide a guaranteed steady income stream, are readily transferable, readily alienated, and are suitable for identification as replacement property under IRC §1031. The deedshares may be encumbered by a mortgage, as required by the particular needs of an individual investor, so as to comply with the debt provisions of IRC §1031. Because deedshares are a direct interest in investment real estate, and the tenant-in-common owners of the real estate do not exercise significant control, and thus are not deemed partners, investors may use IRC §1031 to perform tax-deferred exchanges.

In accordance with the methods of the present invention, a series of steps are involved in creating and managing this new type of real estate investment. First, real property having a preselected total value is purchased and aggregated, and may consist of a number of commercial real estate parcels. The aggregated properties are then made subject to at least one master agreement. Title to the property is then divided into tenant-in-common deeds of at least one predetermined denomination. The master agreements include a provision by which the tenant-in-common deeds may be "reaggregated" after a specified interval, so that the property may be disposed of. The tenant-in-common deeds, subject to master agreements configured in accordance with the methods of the present invention, are referred to herein as "deedshares."

In a preferred embodiment, the master agreements include a master lease, under which the property is leased to a master tenant, who manages the property. During the term of the master lease, the deedshare holders receive a steady, guaranteed income stream from the master tenant, similar to the income one might expect from a high grade bond, e.g., a bond having an AA rating or better. This guaranteed steady income stream also provides a high degree of liquidity. The deedshare holders also obtain favorable tax treatment by being allocated their proportionate share of depreciation so long as they own a deedshare.

At the end of the interval specified in the master lease, the deedshares are subject to a put/call arrangement, whereby the individual owners of deedshares have a right and an obligation to sell their deedshares to the master tenant or some third-party, receiving fair market value for their deedshares. This serves to reaggregate title to the property under the master tenant. The former deedshare holders may, subject to IRC §1031 guidelines and prior to the reaggregation of the property, exchange the deedshares for deedshares having a later maturity date, or for other investment real estate, through another tax-deferred IRC §1031 exchange.

A system of implementing the deedshares and methods of the present invention is also provided for use with a computer system, which enable automated tracking of various items of information relating to the real estate portfolio, master agreement, and investors.

## BRIEF DESCRIPTION OF THE DRAWINGS

The above and other objects and advantages of the present invention will be apparent upon consideration of the following detailed description, taken in conjunction with the accompanying drawings, in which:

FIG. 1 illustrates a prior art IRC §1031 exchange conducted through a qualified intermediary;

FIG. 2 shows the structure of the new real estate investment methods and investment instrument of the present invention;

FIG. 3 depicts an illustrative embodiment of an investment instrument of the present invention;

FIGS. 4A-C illustrate steps taken by each party to an IRC §1031 exchange performed in accordance with a preferred embodiment of the present invention;

FIG. 5 shows an IRC §1031 exchange used for tax-deferred exchange of investment property for "deedshare," in accordance with the principles of the present invention;

FIG. 6 is a flowchart of an IRC §1031 exchange in which investment property is exchanged for deedshares;

FIG. 7 depicts an illustrative computer database structure for implementing the methods and investment instrument of the present invention; and

FIG. 8 shows an illustrative computer system and network for executing a database application implementing the methods and investment instrument of the present invention.

## DETAILED DESCRIPTION OF THE INVENTION

Referring to FIG. 1, a previously known tax-deferred exchange according to IRC §1031 (Title 26, United States Code Section 1031) is described. Exchanger 10, who wishes to exchange investment real property A, provides a third party, typically qualified intermediary 12, with the deed to property A. Qualified intermediary 12 then transfers the property to buyer 14 in exchange for money. Once the property is transferred to buyer 14, IRC §1031 specifies that exchanger 10 has 45 days to designate replacement properties, and 180 days to close on any replacement properties for the transaction to be considered an "exchange." Exchanger 10 designates replacement investment real property B, owned by owner 16. Qualified intermediary 12 then acquires replacement property B from owner 16 and transfers replacement property B to exchanger 10 and money to owner 16. Exchanger 10 must obtain a mortgage replacement on property B in an amount at least equal to the amount of any mortgages on relinquished property A.

In designating replacement properties under IRC §1031, exchanger 10 may identify up to 3 potential properties to serve as replacements. More than three replacement properties may be identified, as long as the aggregate value of all of the designated properties adds up to no more than twice the value of the relinquished property.

IRC §1031 also requires that when the exchange is complete, the value and debt of the replacement property must both be greater than or equal to the value and debt of the relinquished property. If the replacement property has a lower value, or is subject to a smaller mortgage than the relinquished property, the boot is taxable. This rule ensures that taxes are paid on any money that is taken out of the investment real estate during the exchange.

Qualified intermediary 12 is used to perform the exchange, because if exchanger 10 exercises control over the money acquired from buyer 14, the entire transaction may

not be viewed as an exchange of property, and the proceeds of the sale of the relinquished property may be taxable. It should also be noted that tax-deferred exchanges under IRC §1031 also require that the exchanger intend to hold the replacement property for productive use in a trade or business or for investment.

IRC §1031 also sets out certain exceptions. One important exception is that interests in a partnership are not subject to tax-deferred exchanges. Other exceptions include beneficial interests, and property held primarily for sale.

Problems with identifying and closing on replacement properties within the required time limits cause many attempted §1031 exchanges to fail, with substantial negative tax consequences to the property owner who was attempting the exchange. In addition, because §1031 exchanges simply trade the relinquished property for the replacement property, it is difficult to use a §1031 exchange to acquire an investment interest with diversity, divisibility, high liquidity, or guaranteed returns.

To address these difficulties with IRC §1031 exchanges, the applicants have developed new methods, and investment instruments especially suited for performing real estate exchanges. In accordance with the principles of the present invention, this new investment instrument provides an exchanger with a direct interest (i.e. not a beneficial interest or partnership interest) in real estate, so that a tax-deferred exchange under IRC §1031 may be used to trade into the new investment. The new investment also is easy to identify as a replacement property and to close on, so that there are no difficulties in completing the transaction within the time limits specified in IRC §1031. Additionally, the investment created in accordance with the present invention preferably provides guaranteed returns, a steady income stream, diversity, divisibility, and liquidity.

Referring now to FIG. 2, the structure and operation of a preferred embodiment of the investment methods and investment instrument of the present invention are described. First, a number of commercial properties are identified and acquired to form a real estate portfolio 20, a process referred to herein as "aggregation." Because a large number of quality properties are selected for the portfolio, the aggregate value of the portfolio may be quite high, e.g., several tens of millions of dollars. This in turn makes the portfolio an attractive investment opportunity, and enables a resale market to be readily established.

Real estate portfolio 20, illustratively comprising real estate having a total value of \$100 million, then is subjected to a master agreement, described hereinbelow, and divided into deedshares 22 having of a single or multiple specified denominations. In FIG. 2, each of deedshares 22 illustratively has a specified denomination of \$100,000 per deed share, so that the \$100 million value of real estate portfolio 20 is divided into one thousand \$100,000 deedshares 22.

Each of deedshares 22 is a tenant-in-common deed to a proportional (0.1%) undivided part interest in real estate portfolio 20. As an interest in real property, each deedshare 22 may be subjected to a separate mortgage in whatever amount is required to meet the needs of a particular investor, thus enabling the transaction to comply with the debt provisions of IRC §1031. In accordance with the principles of the present invention, and to provide desirable characteristics such as liquidity and guaranteed income, each of deedshares 22 is created subject to master agreement 24, which preferably includes a master lease, as described hereinafter.

Master agreement 24 comprises an agreement that ensures that all of deedshares 22 can be reaggregated after a speci-

fied interval, e.g., 10 years, so that real estate portfolio 10 may be disposed of, and the proceeds distributed to the holders of deedshares 22. This mechanism provides a way to get invested money back out of real estate portfolio 20 without requiring that the holders of deedshares 22 exercise control over their individual ownership interests, thereby avoiding the attributes of a partnership.

In a preferred embodiment, the agreement to reaggregate the property interests of deedshares 22 may be achieved by building a put/call mechanism in the deedshare, whereby each of the individual owners of deedshares 22 has a right and an obligation to sell deedshares 22 to a specified buyer (e.g., the entity holding the master lease) at fair market value. Other types of agreements also may be used for this purpose. For example, master agreement 24 may include an exclusive sales provision, giving a specified real estate broker the exclusive right to sell real estate portfolio 20 after the specified time. Generally, any agreement whereby ownership of deedshares 22 is conditioned upon an agreement to sell the deedshares, at a specified time (or maturity date), or under specified conditions, is expected to accomplish the goal of reaggregating the tenant-in-common interests represented by deedshares 22 into a unified title in real estate portfolio 20.

Master agreement 24 preferably comprises provisions that prevent holders of deedshares 22 from providing common services with respect to real estate portfolio 20, from entering into joint venture activities with respect to real estate portfolio 20 with fellow owners of deedshares 22, from establishing a common trade name in relation to their holdings of deedshares 22, and from commingling or establishing joint financial arrangements with respect to real estate portfolio 20 with other owners of deedshares 22. These provisions are intended to prevent owners of deedshares 22 from acquiring the attributes of a partnership, which might otherwise make deedshares 22 ineligible for tax-deferred treatment under IRC §1031.

For the foregoing reason, master agreement 24 preferably also includes no provisions that require joint management activity on the part of owners of deedshares 22. For example, the owners of deedshares 22 should not be required (or permitted) to vote on the sale of real estate portfolio 20.

In a preferred embodiment, master agreement 24 comprises a master lease, whereby a master tenant is placed over the properties in real estate portfolio 20. The master tenant agrees to pay rent to the owner of portfolio 20, including the individual holders of deedshares 22, over a specified term. The master tenant also is given the right to sublease the real estate, and is responsible for paying the taxes, upkeep, maintenance, and insurance on the leased property.

The credit rating of the master tenant plays a role in ensuring that the holders of deedshares 22 receive a guaranteed income stream from the rent paid by the master tenant. Preferably, the master tenant is a commercial entity having at least an AA credit rating or better. Alternatively, a master tenant having a credit rating less than AA may be employed, in which case the master tenant may be "credit enhanced" by making a payment to a third party to guarantee any shortfall between the rate of return guaranteed in the deedshare and the actual income from the property.

Applicants believe that by providing a guaranteed income stream over a specified term, the investment instrument and methods of the present invention will make the investment value of deedshares 22 comparable to that of high quality commercial bonds. Accordingly, it should be possible to establish a market in this type of investment instrument, thus

making deedshares 22 easy to liquidate. It is expected, for example, that it should be possible to buy or sell deedshares 22 in the same manner that bonds or shares of mutual funds currently are traded.

Master agreement 24 also may contain other provisions relating to the master tenant. For example, the put/call provisions preferably specify the master tenant as the entity to which deedshares 22 are sold at the end of the specified time. Additionally, it is possible to adjust the profit made by the master tenant on this sale by adjusting the term of the master lease and the specified time during which deedshares 22 are held to maturity.

For example, if the master lease is for a term of 15 years, but deedshares 22 call for title to the real estate portfolio to be reaggregated after 10 years, then the fair market value of real estate portfolio 20 will be influenced by the encumbrance of the additional five year term of the lease. Accordingly, the master tenant will be able to purchase real estate portfolio 20 back from the holders of deedshares 22 at a favorable price, thus encouraging the funding of such arrangements.

As will be understood by one skilled in the banking and investment arts, the size of real estate portfolio 20 may be selected to suit the needs of the prospective pools of investors. Additionally, the denominations of deedshares 22 may be selected at any suitable value, and real estate portfolio may include several classes of deedshares, each class having a different predetermined denomination. The terms of master agreement 24 also may be varied, depending on the nature and growth objectives of real estate portfolio 20 and the needs of prospective investors.

Referring to FIG. 3, an example deedshare is shown. As discussed above, deedshare 25 comprises a tenant-in-common part interest in the property. Deedshare 25 has predetermined denomination 26 (\$100,000 in this case), that determines the share of an overall real estate portfolio that is represented by deedshare 25. Deedshare 25 also includes master agreement 27, that includes provision 27a for reaggregating title to the property in the real estate portfolio after a specified interval. In a preferred embodiment, this is accomplished through use of a put/call provision, as explained above.

In a preferred embodiment of deedshare 25, master agreement 27 also comprises provision 27b, which prevents holders of the deedshares from exercising control over the property interest represented by deedshare 25, so that the deedshare holders may not be deemed to be a partnership, as explained above. A preferred embodiment of deedshare 25 is also encumbered by master lease 28, whereby the real estate interest represented by deedshare 25 is leased for a specified term to a master tenant in exchange for rent paid to the owners of the real estate, including the holder of deedshare 25.

Master lease 28 preferably includes sublease provision 28a, permitting the master tenant to sublease the real estate, maintenance provision 28b, requiring the master tenant to maintain the real estate, insurance provision 28c, requiring the master tenant to insure the real estate, and tax provision 28d, requiring the master tenant to pay taxes on the real estate. The master lease also may include guaranteed rent provision 28e, designating that the master tenant pay a predetermined guaranteed income to the holder of deedshare 25, and credit rating provision 28f, requiring that the master tenant have a minimum credit rating of AA. Additionally, master lease 25 may contain extended term provision 28g, designating that the master lease extends beyond the term of

the master agreement, affecting the fair market value of the property, as discussed above.

Referring now to FIGS. 4A–C, the steps taken by various parties in accordance with a preferred embodiment of the methods of the present invention are described. In FIG. 4A, the steps taken by the seller of the deedshares, who may be the master tenant, are shown. First, at step 30, the seller purchases and aggregates a real estate portfolio having a predetermined value, e.g., \$100 million.

In step 31, the real estate portfolio is encumbered with a master agreement and master lease for a specified interval, e.g., 10 years. The master agreement includes a mechanism, discussed hereinabove, to reaggregate title from the holders of the deedshares to enable the real estate portfolio to be disposed of at the end of the term of the master agreement. In step 32, title to the real estate in the portfolio is divided into tenant-in-common deeds having a predetermined denomination, e.g., 1000 deeds each having a \$100,000 value, creating "deedshares." Finally, at step 33, the seller sells the deedshares to the public, either directly, or through qualified intermediaries via IRC §1031 exchanges.

FIG. 4B shows the steps taken by the master tenant, starting with entering into the master lease, at step 40. During the term of the master lease, several steps are taken. At step 41, the master tenant pays monthly rent on the lease to the deedshare holders (co-tenants). The master tenant then subleases the property (typically at a profit) to one or more subtenants at step 42. In steps 43 and 44, the master tenant maintains the property, and pays the taxes and insurance on the property. When the term of the deedshare has expired, at step 45, the master tenant exercises his call to purchase the deedshares from the individual deedshare holders at a calculable value, such as fair market value.

FIG. 4C shows the steps taken by a deedshare holder. At step 50, the deedshares are purchased from the seller, either directly, or through a qualified intermediary as part of an IRC §1031 exchange, as described in greater detail hereinbelow. During the term of the deedshares, the deedshare holder receives guaranteed monthly income from the rent paid by the master tenant (step 51). During the term of the deedshares, each deedshare holder is permitted to depreciate the deedshare holder's tax basis in any improvements on the property for tax-accounting purposes (step 52). At the end of the term, at step 53, the deedshare holder exercises his put to force the master tenant to purchase the deedshares at fair market value. Prior to the end of the term of the master lease, a deedshare owner may freely alienate title to the deedshare.

It should be noted that in this preferred embodiment, if neither the put nor the call are exercised, the master tenant continues to pay rent to the deedshare holder to the end of the term of the master lease, and the deedshare holder continues to collect monthly income from the property, and yearly depreciation. Also, as discussed hereinabove with reference to FIG. 2, numerous modifications may be made to this arrangement. These modifications may include changing the size of the real estate portfolio, the denominations of the deedshares, the term of the master lease, the term of the deedshares before the put/call may be exercised, the terms of the master agreement, and the mechanism by which title to the real estate portfolio may be reaggregated.

Referring now to FIG. 5, the method of the present invention is described in the context of an IRC §1031 exchange. Since deedshares represent an interest in investment property, and the master agreement is designed to insure that the tenants-in-common do not acquire the attributes of a partnership, the deedshares are subject to tax-deferred treatment under IRC §1031.

Exchanger 60 of investment real property A provides qualified intermediary 62 with the deed to relinquished property A. Qualified intermediary 62 then transfers title to property A to buyer 64 in exchange for money. In accordance with the principles of the present invention, seller 66 of replacement property B encumbers property B with a master agreement, leases property B to a master tenant, and divides title in property B into tenant-in-common interests having predetermined denominations, to create deedshares.

Seller 66 then conveys an appropriate value of deedshares to qualified intermediary 62. Exchanger 60 identifies the deedshares of the present invention as the replacement property for the exchange and obtains a mortgage commitment in an amount at least equal to the mortgage on relinquished property A. Once the purchase of the deedshares "closes", qualified intermediary 62 transfers the deedshares to exchanger 60, thereby completing the exchange.

Applicants expect that there will be a ready market for deedshares, because there should be no difficulty identifying deedshares or closing on the identified deedshares within the time limits specified in IRC §1031. Moreover, applicants expect that by acquiring multiple deedshares (perhaps of different denominations) it will be easy to meet or exceed the value of the exchanged real estate using deedshares as the replacement property. Because the deedshares of the present invention represent an interest in real estate, they may be held subject to a mortgage, so the debt on the exchanged real estate also can be matched or exceeded, as required by IRC §1031.

During the remaining portion of the specified term of the deedshares, exchanger 60 collects an income stream from his deedshares from master tenant 68, and may depreciate his interest in improvements on the replacement property B. When the deedshares reach maturity, or when exchanger 60 decides to sell his deedshares, they may be sold for money, incurring tax liability at that time, or they may be exchanged for other deedshares or for other investment real estate through a further tax-deferred exchange under IRC §1031.

A flowchart showing the individual steps in the process for performing an IRC §1031 exchange of investment real estate for deedshares is shown in FIG. 6. At step 70, the exchanger (i.e., exchanger 60 of FIG. 5) transfers the deed to the relinquished property to a qualified intermediary. Next, at step 71, the qualified intermediary sells the relinquished property to a buyer, in exchange for money. Any mortgage on the relinquished property is paid from the proceeds of the sale. At this point, IRC §1031 specifies that the exchanger has 45 days to identify replacement property, and 180 days to close on the replacement property.

In step 72, the exchanger identifies deedshares, as described hereinabove, to the qualified intermediary as the replacement property. To avoid boot, the identified deedshares must have denominations that add up to a value at least equal to the value of the relinquished property, and must be subject to mortgages that will add up to a value at least equal to the value of the mortgage on the relinquished property. In step 73, the qualified intermediary purchases the deedshares from a deedshare seller, closing the deal within the 180 day time limit specified in IRC §1031. Finally, in step 74, the qualified intermediary transfers the deedshares, subject to the appropriate mortgages, to the exchanger.

Referring now to FIG. 7, an illustrative implementation of the investment instrument and methods of the present invention is described. In FIG. 7, the properties and investors (deedshare holders) are tracked using a database application executed on a computer system. Database 80 contains four

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inter-related sets of tables—property tables 82, investor tables 84, master tenant table 86, and mortgage tables 88.

Each one of property tables 82 contains a list of properties associated with a single real estate portfolio that has been divided into deedshares, as described hereinabove. Each property in the list preferably includes information such as the name and address of the property, the type of property, the current income associated with the property, and the fair market value (as of last appraisal) of the property. Each property table, for example, may include information such as the total value of the properties in the table (real estate portfolio), the total number and denominations of outstanding deedshares on the properties in the table, and the date at which the deedshares become subject to the put/call under the master agreement. In addition, each one of property tables 82 may be associated with a master tenant in master tenant table 86.

Each one of property tables 82 is also associated with one of investor tables 84. Each investor table 84 preferably contains a list of all of the investors who hold deedshares in a particular real estate portfolio. For each investor, the database may include information such as the name and address of the investor, the number and denominations of deedshares held, the fair market value of the portion of the property associated with the deedshares (as of the last appraisal of the property), and the income provided to the investor based on the deedshares.

Master tenant table 86 may be a single table containing a list of the master tenants associated with each of the real estate portfolios. For each master tenant, database 80 preferably contains information such as the name and address of the master tenant, the credit rating of the master tenant (and any enhancement needed), and the rent paid by the master tenant under the master agreement. Alternatively, the identity of the master tenant, and related information, may be combined into property tables 82.

Mortgage tables 88 contain a list of the debt encumbering each investor's relinquished property and the debt associated with the deedshares held by each investor. This information may be used in conjunction with the information in property tables 82 to help investors assure that they obtain a sufficient mortgage on deedshares to comply with IRC §1031, and to assure lenders of the appropriate loan-to-value ratio which warrants the mortgage needed by investors.

Database 80 may be used to generate reports required by applicable securities laws, as well as reports on the value of each real estate portfolio, the rental income due to each deedshare holder, certain information required by deedshare holders to complete their income tax returns, or any other useful compilation of the data contained in database 80. Additionally, database 80 may be linked to other databases (either directly or through a network, such as the Internet), such as the databases kept by master tenants, to keep track of subleases and maintenance.

Pertinent information from database 80 may be made available to investors. The data in database 80 also may be made available to qualified intermediaries, to be used in identifying which deedshares of various real estate portfolios best match the needs of potential investors for IRC §1031 exchanges, or for identifying potential master tenants or subtenants.

It will be evident to one skilled in the art that there are other possible arrangements for the data in database 80. For example, the investor and property tables each may be organized as one large table, with each entry in the investor table having links to one or more of the entries in the

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properties table, and each entry in the properties table having links to one or more entries in the investor table. Also, the investor table may be replaced with a deedshare table, listing the deedshares in each of the real estate portfolios, wherein each deedshare entry contains information on an investor. Additionally, the information contained in each table may be varied. For example, each entry in the investors table may contain additional information on the investor, such as age, current income (for tax purposes), and information on other properties and investments held by the investor.

Referring to FIG. 8, an illustrative computer system and network for executing and accessing the database of FIG. 7 is shown. Computer system 90 is a database server that executes the database described hereinabove. Computer system 90 includes CPU 91, which executes instructions that implement a database server application, and mass storage 92, preferably a RAID array, on which the data that forms the database is stored. Computer system 90 also preferably includes network interface 93 so that the database may be accessed through other computers on a local area network.

Computer system 90 also preferably includes communication device 94, which may comprise a telephone modem, a cable modem, an ADSL modem, or any other device capable of communicating data between a computer and a wide area network. Communication device 94 is used to connect computer system 90 to a wide area network, preferably the Internet. This connection permits users at remote locations to access data in the database on computer system 90. These users may include deedshare brokers, qualified intermediaries, master tenants, deedshare owners, or others who are entitled to access the information in the database. To prevent unauthorized access to data, computer system 90 preferably executes security software as well as the database server application.

Computer system 90 is preferably connected to a local area network, having multiple client computers 95, each of which may be used to access the database on computer system 90. Additionally, printer 96, which may be used for printing database reports or for printing certificates representative of deedshares, is connected to the local area network. Alternatively, printer 96 may be connected directly to computer system 90.

Although preferred illustrative embodiments of the present invention are described above, it will be evident to one skilled in the art that various changes and modifications may be made without departing from the invention. It is intended in the appended claims to cover all such changes and modifications that fall within the true spirit and scope of the invention.

What is claimed is:

1. A method of creating a real estate investment instrument adapted for performing tax-deferred exchanges comprising:

aggregating real property to form a real estate portfolio; encumbering the property in the real estate portfolio with a master agreement; and

creating a plurality of deedshares by dividing title in the real estate portfolio into a plurality of tenant-in-common deeds of at least one predetermined denomination, each of the plurality of deedshares subject to a provision in the master agreement for reaggregating the plurality of tenant-in-common deeds after a specified interval.

2. The method of claim 1, wherein encumbering the property in the real estate portfolio with a master agreement further comprises encumbering the real property with a

master lease to a master tenant who pays rent to holders of the deedshares.

3. The method of claim 2, wherein creating the plurality of deedshares further comprises structuring the provision to include a put provision that allows holders of the deedshares to force the master tenant to purchase the deedshares at a calculable value after the specified interval and a call provision that allows the master tenant to force holders of the deedshares to sell their deedshares to the master tenant at a calculable value after the specified interval.

4. The method of claim 2, wherein encumbering the real property in the real estate portfolio with a master agreement further comprises including a sublease provision in the master lease, enabling the master tenant to sublease the real estate.

5. The method of claim 2, wherein encumbering the real property in the real estate portfolio with a master agreement further comprises including a maintenance provision in the master lease, requiring the master tenant to maintain the real estate.

6. The method of claim 2, wherein encumbering the real property in the real estate portfolio with a master agreement further comprises including an insurance provision in the master lease, requiring the master tenant to insure the real estate.

7. The method of claim 2, wherein encumbering the real property in the real estate portfolio with a master agreement further comprises including a tax provision in the master lease, requiring the master tenant to pay taxes on the real estate.

8. The method of claim 2, wherein encumbering the real property in the real estate portfolio with a master agreement further comprises including an extended term provision in the master lease, designating that the master lease extends beyond the specified interval.

9. The method of claim 2, wherein encumbering the real property in the real estate portfolio with a master agreement further comprises including a guaranteed rent provision in the master lease, designating that the master tenant pay a predetermined guaranteed income to holders of the deedshares.

10. The method of claim 2, wherein encumbering the real property in the real estate portfolio with a master agreement further comprises including a credit rating provision in the master lease, requiring that the master tenant have a specified minimum credit rating.

11. A method of performing a tax-deferred exchange of investment real estate under §1031 of the Internal Revenue Code comprising:

transferring a first interest in investment real estate having a first value and being subject to a first debt from an exchanger to a third party;

using the third party to transfer title to the first interest in investment real estate to a buyer in exchange for money, proceeds of the transfer of the title to the first interest being held by the third party;

identifying deedshares having a second value equal to or greater than the first value and subject to a second debt equal to or greater than the first debt as a replacement property within a specified number of days of transferring title to the first interest in investment real estate, the deedshares comprising an undivided tenant-in-common interest in investment real estate that is subject to a master agreement including a provision reaggregating title to the investment real estate represented by the deedshares at a specified time;

closing the sale of the deedshares within a second specified number of days of transferring title to the first interest in investment real estate; and

transferring the deedshares and the second debt from the third party to the exchanger.

12. The method of claim 11, wherein identifying deedshares comprises identifying a combination of deedshares having different predetermined denominations that sum to the second value.

13. The method of claim 11, wherein identifying deedshares further comprises identifying deedshares subject to a master lease to a master tenant, and the master tenant pays rent to owners of the deedshares.

14. The method of claim 13, wherein identifying deedshares further comprises identifying deedshares subject to a provision for reaggregating title that comprises a put provision that allows the owners of the deedshares to force the master tenant to purchase the deedshares at a calculable value on or after the specified time, and a call provision that allows the master tenant to force the owners of the deedshares to sell their deedshares to the master tenant at a calculable value on or after the specified time.

15. The method of claim 13, wherein identifying deedshares further comprises identifying deedshares including a provision enabling the master tenant to sublease the real estate.

16. The method of claim 13, wherein identifying deedshares further comprises identifying deedshares including a provision requiring the master tenant to maintain the real estate.

17. The method of claim 13, wherein identifying deedshares further comprises identifying deedshares including a provision requiring the master tenant to insure the real estate.

18. The method of claim 13, wherein identifying deedshares further comprises identifying deedshares including a provision requiring the master tenant to pay taxes on the real estate.

19. The method of claim 13, wherein identifying deedshares further comprises identifying deedshares including a provision that the master lease extends beyond the specified interval.

20. The method of claim 13, wherein identifying deedshares further comprises identifying deedshares including a provision that requires the master tenant has a specified minimum credit rating.

21. The method of claim 13, wherein identifying deedshares further comprises identifying deedshares including a provision to appoint a real estate broker to sell the real estate after title to the real estate has been reaggregated at the specified time.

22. A method of creating a real estate investment instrument adapted for performing tax-deferred exchanges comprising:

acquiring real property;

encumbering the real property with a master agreement; and

creating a plurality of deedshares by dividing title in the real property into a plurality of tenant-in-common deeds of at least one predetermined denomination, each of the plurality of deedshares subject to a provision for reaggregating the plurality of tenant-in-common deeds after a specified interval.

23. The method of claim 22, wherein encumbering the real property with a master agreement further comprises encumbering the real property with a master lease to a master tenant who pays rent to holders of the deedshares.

24. The method of claim 23, wherein creating the plurality of deedshares further comprises structuring the provision to include a put provision that allows holders of the deedshares

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to force the master tenant to purchase the deedshares at a calculable value after the specified interval and a call provision that allows the master tenant to force holders of the deedshares to sell their deedshares to the master tenant at a calculable value after the specified interval.

25. The method of claim 23, wherein encumbering the real property with a master agreement further comprises including a sublease provision in the master lease, enabling the master tenant to sublease the real property.

26. The method of claim 23, wherein encumbering the real property with a master agreement further comprises including a maintenance provision in the master lease, requiring the master tenant to maintain the real property.

27. The method of claim 23, wherein encumbering the real property with a master agreement further comprises including an insurance provision in the master lease, requiring the master tenant to insure the real property.

28. The method of claim 23, wherein encumbering the real property with a master agreement further comprises including a tax provision in the master lease, requiring the master tenant to pay taxes on the real property.

29. The method of claim 23, wherein encumbering the real property with a master agreement further comprises including an extended term provision in the master lease, designating that the master lease extends beyond the specified interval.

30. The method of claim 23, wherein encumbering the real property with a master agreement further comprises including a guaranteed rent provision in the master lease, designating that the master tenant pay a predetermined guaranteed income to holders of the deedshares.

31. The method of claim 23, wherein encumbering the real property with a master agreement further comprises including a credit rating provision in the master lease, requiring that the master tenant have a specified minimum credit rating.

32. A method of creating a real estate investment instrument adapted for performing tax-deferred exchanges comprising:

acquiring real property;

encumbering the real property with a master agreement; and

using a computer to generate a plurality of deedshares by generating a plurality of tenant-in-common deeds of at least one predetermined denomination that divide title in the real property into a plurality of tenant-in-common interests, each of the plurality of tenant-in-common deeds being subject to a provision in the

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master agreement for reaggregating the plurality of tenant-in-common deeds after a specified interval.

33. The method of claim 32, wherein encumbering the real property with a master agreement further comprises encumbering the real property with a master lease to a master tenant who pays rent to holders of the deedshares.

34. The method of claim 33, wherein using a computer to generate the plurality of deedshares further comprises including in the master agreement a put provision that allows holders of the deedshares to force the master tenant to purchase the deedshares at a calculable value after the specified interval and a call provision that allows the master tenant to force holders of the deedshares to sell their deedshares to the master tenant at a calculable value after the specified interval.

35. The method of claim 33, wherein encumbering the real property with a master agreement further comprises including a sublease provision in the master lease, enabling the master tenant to sublease the real property.

36. The method of claim 33, wherein encumbering the real property with a master agreement further comprises including a maintenance provision in the master lease, requiring the master tenant to maintain the real property.

37. The method of claim 33, wherein encumbering the real property with a master agreement further comprises including an insurance provision in the master lease, requiring the master tenant to insure the real property.

38. The method of claim 33, wherein encumbering the real property with a master agreement further comprises including a tax provision in the master lease, requiring the master tenant to pay taxes on the real property.

39. The method of claim 33, wherein encumbering the real property with a master agreement further comprises including an extended term provision in the master lease, designating that the master lease extends beyond the specified interval.

40. The method of claim 33, wherein encumbering the real property with a master agreement further comprises including a guaranteed rent provision in the master lease, designating that the master tenant pay a predetermined guaranteed income to holders of the deedshares.

41. The method of claim 33, wherein encumbering the real property with a master agreement further comprises including a credit rating provision in the master lease, requiring that the master tenant have a specified minimum credit rating.

\* \* \* \* \*



US005126936A

**United States Patent** [19][11] **Patent Number:** 5,126,936**Champion et al.**[45] **Date of Patent:** Jun. 30, 1992[54] **GOAL-DIRECTED FINANCIAL ASSET MANAGEMENT SYSTEM**[75] **Inventors:** Robert R. Champion; Basil R. Twist, Jr., both of San Francisco, Calif.[73] **Assignee:** Champion Securities, San Francisco, Calif.[21] **Appl. No.:** 402,498[22] **Filed:** Sep. 1, 1989[51] **Int. Cl.:** G06F 15/30[52] **U.S. Cl.:** 364/408; 364/401[58] **Field of Search:** 364/408, 401[56] **References Cited****U.S. PATENT DOCUMENTS**

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*Primary Examiner*—Jerry Smith

*Assistant Examiner*—Allen M. Lo

*Attorney, Agent, or Firm*—Hopgood, Calimafde, Kalil, Blaustein & Judlowe

[57] **ABSTRACT**

A data processing apparatus and method controls and implements a goal-directed financial assets management system. The operative system receives investor deposits at selected levels of correspondence to established capital markets. A proportionality factor, or "market multiple" MM, is established as a measure of correspondence between the account and each market or asset of interest. The operative system periodically enters new account data and adjusts the individual accounts in response thereto. The system determines a net position change which is translated into aggregate purchase/sale orders of various market index futures contracts or other capital instruments. The system automatically adjusts the risk exposure in any asset category to prevent its reaching an excessive level. As a result, an account can never lose more than the amount deposited. The data processing system provides efficient operation and low transaction fees to the participating investors.

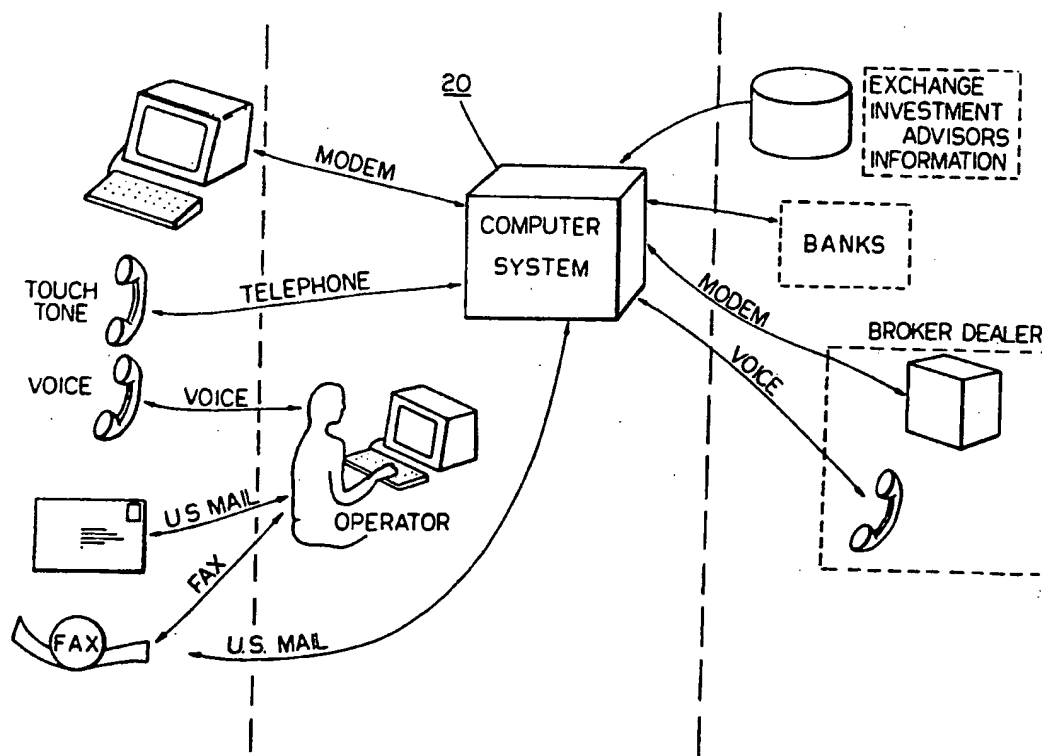
**18 Claims, 12 Drawing Sheets**



FIG. 1A

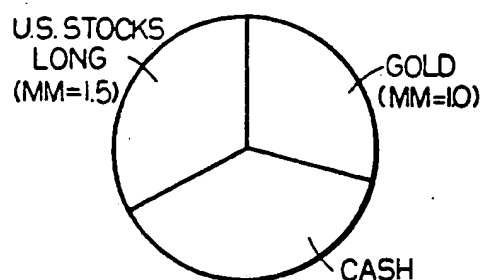


FIG. 1B

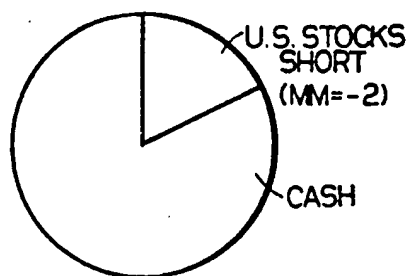


FIG. 1C

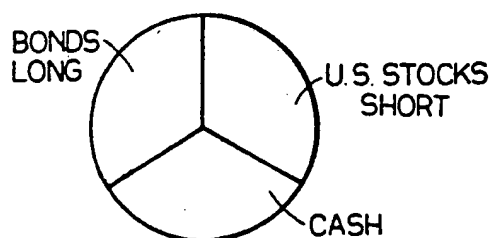


FIG. 1D

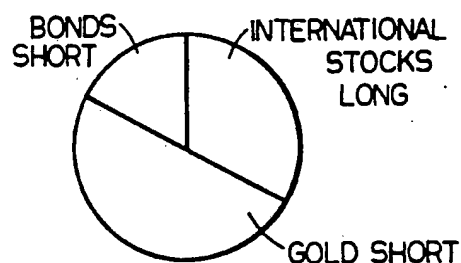
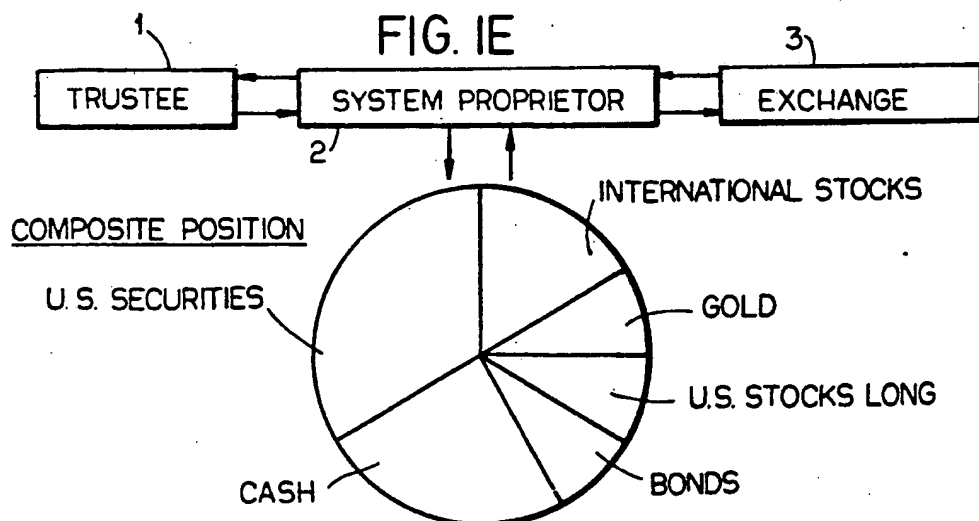
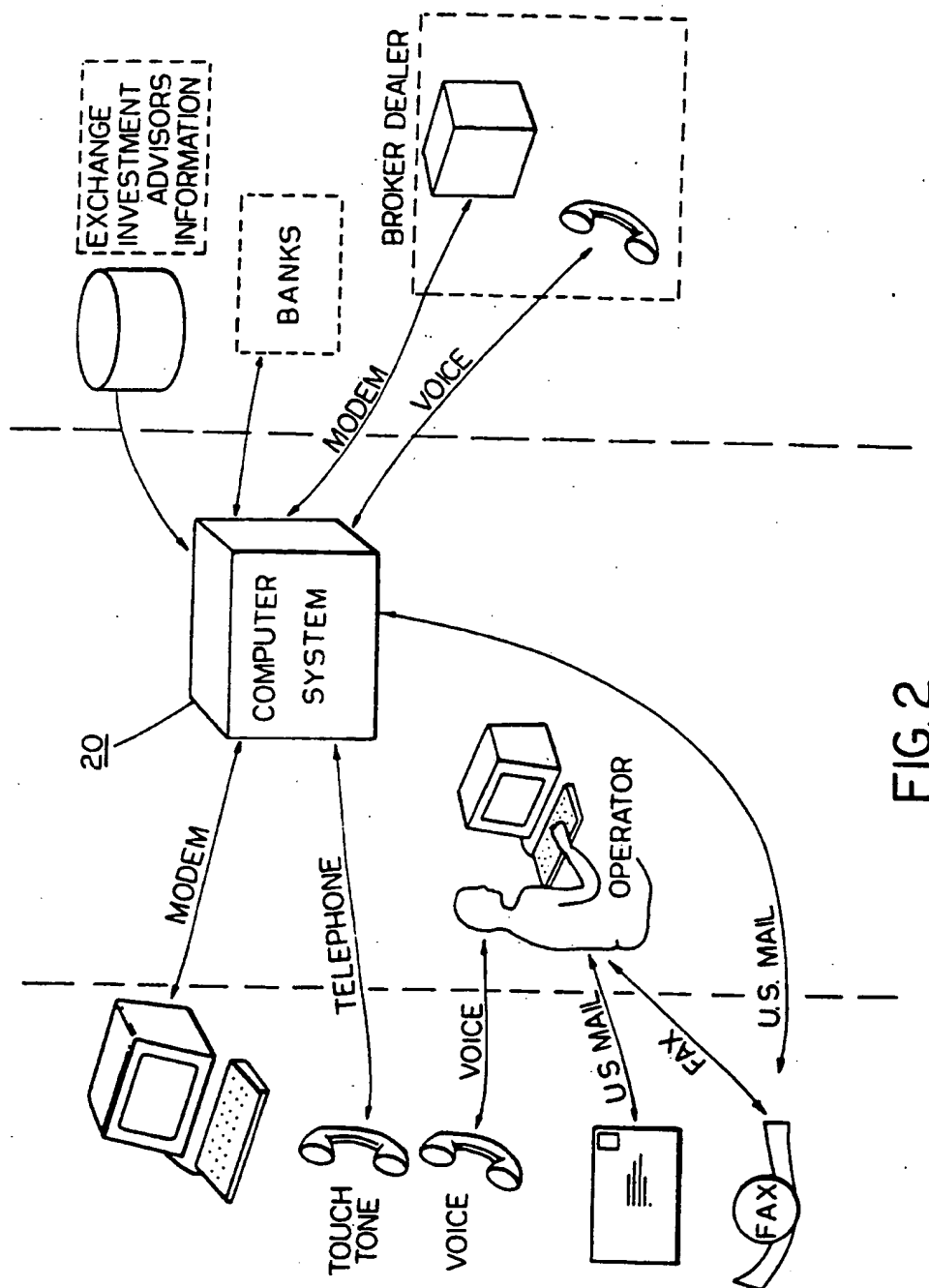


FIG. 1E





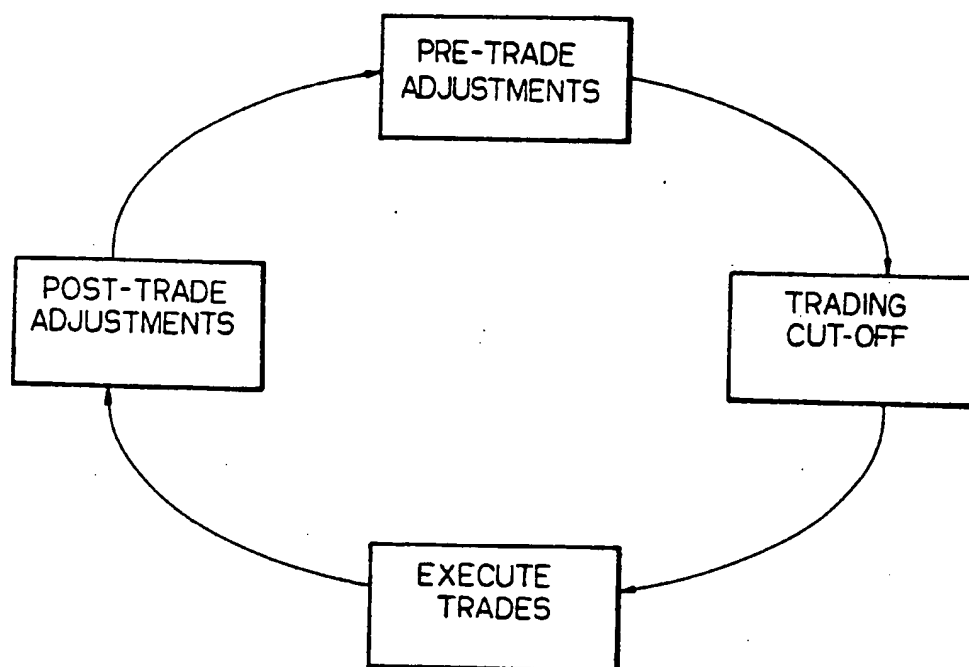


FIG.3

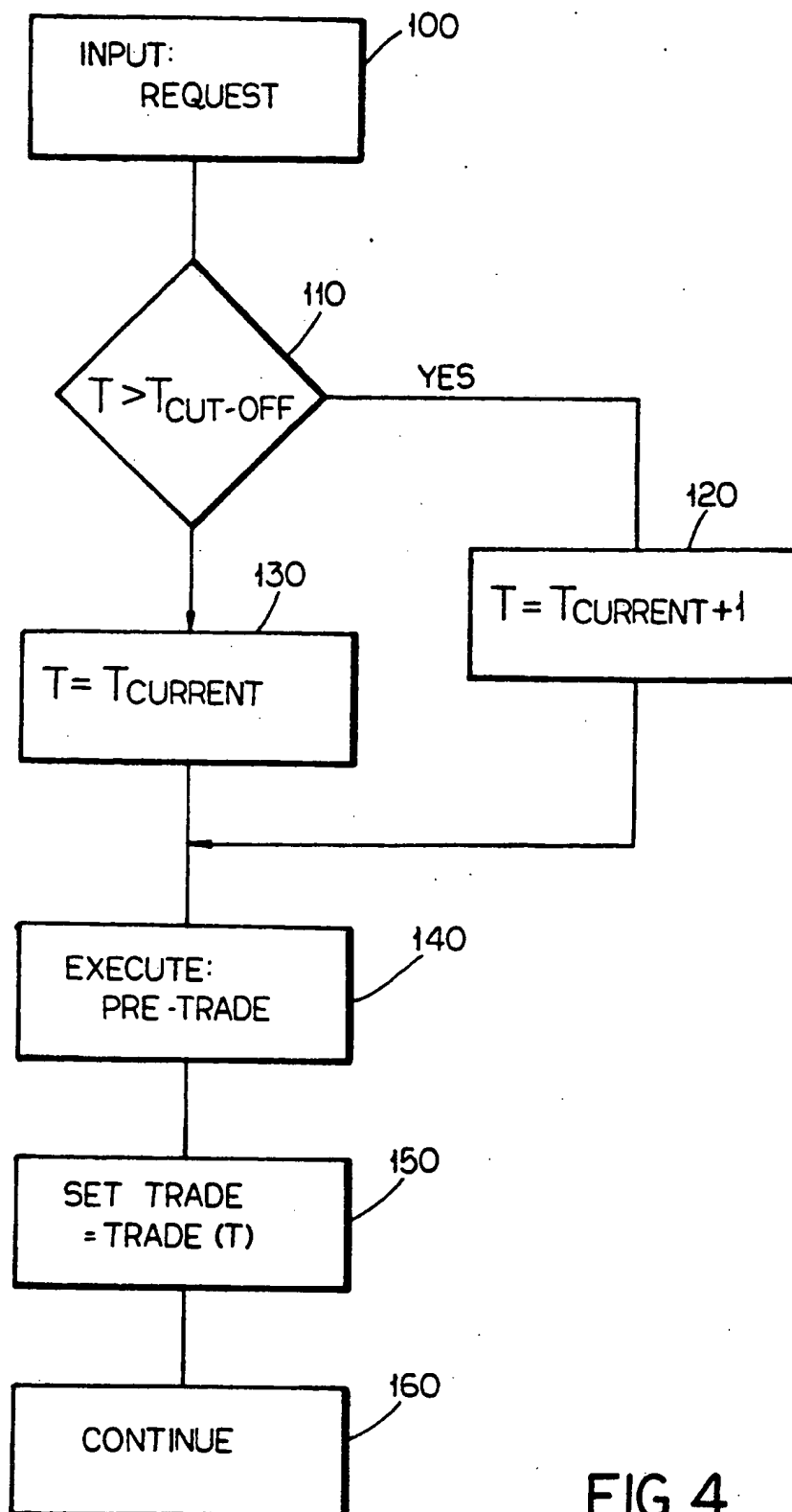


FIG. 4

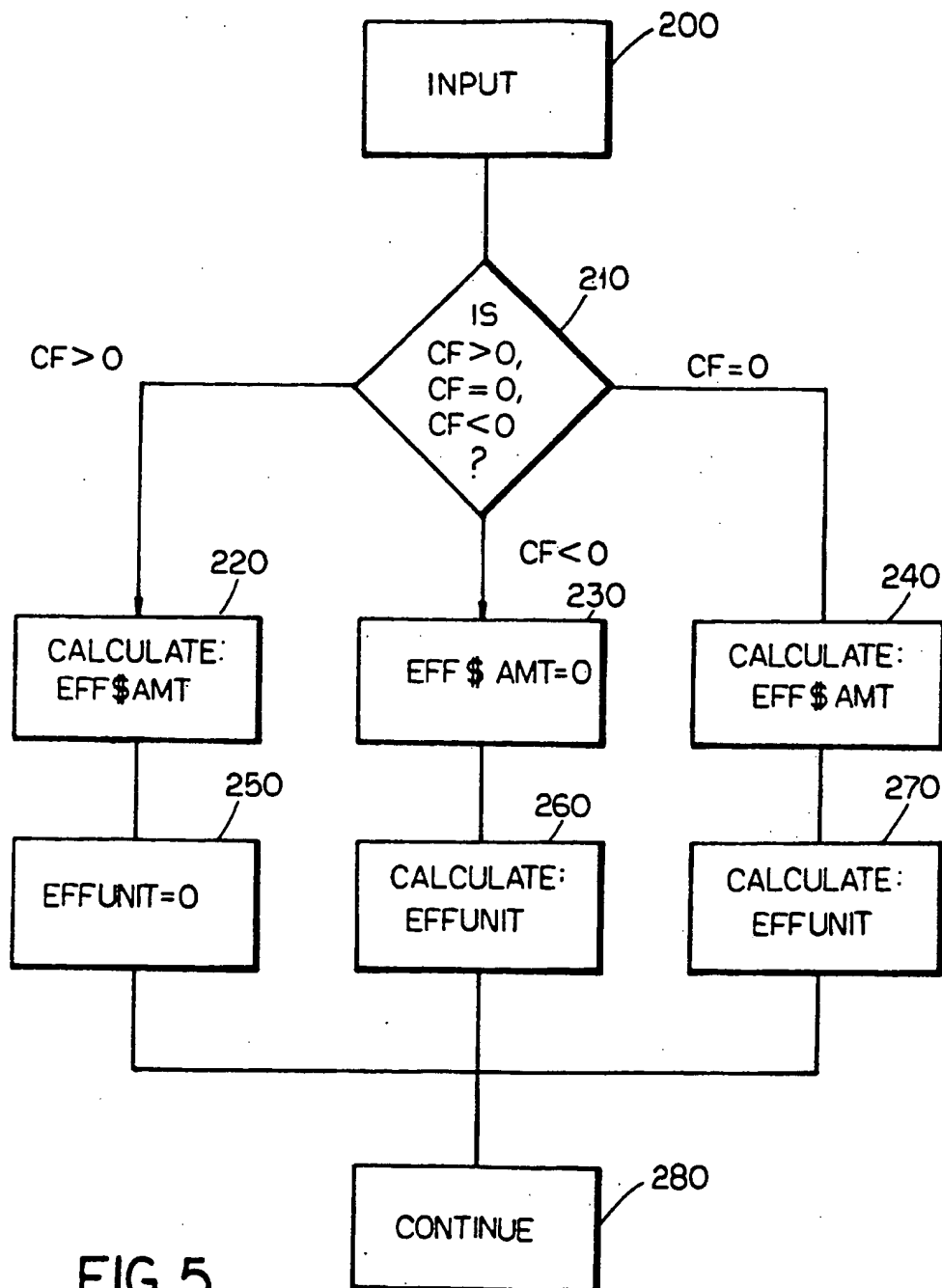


FIG. 5

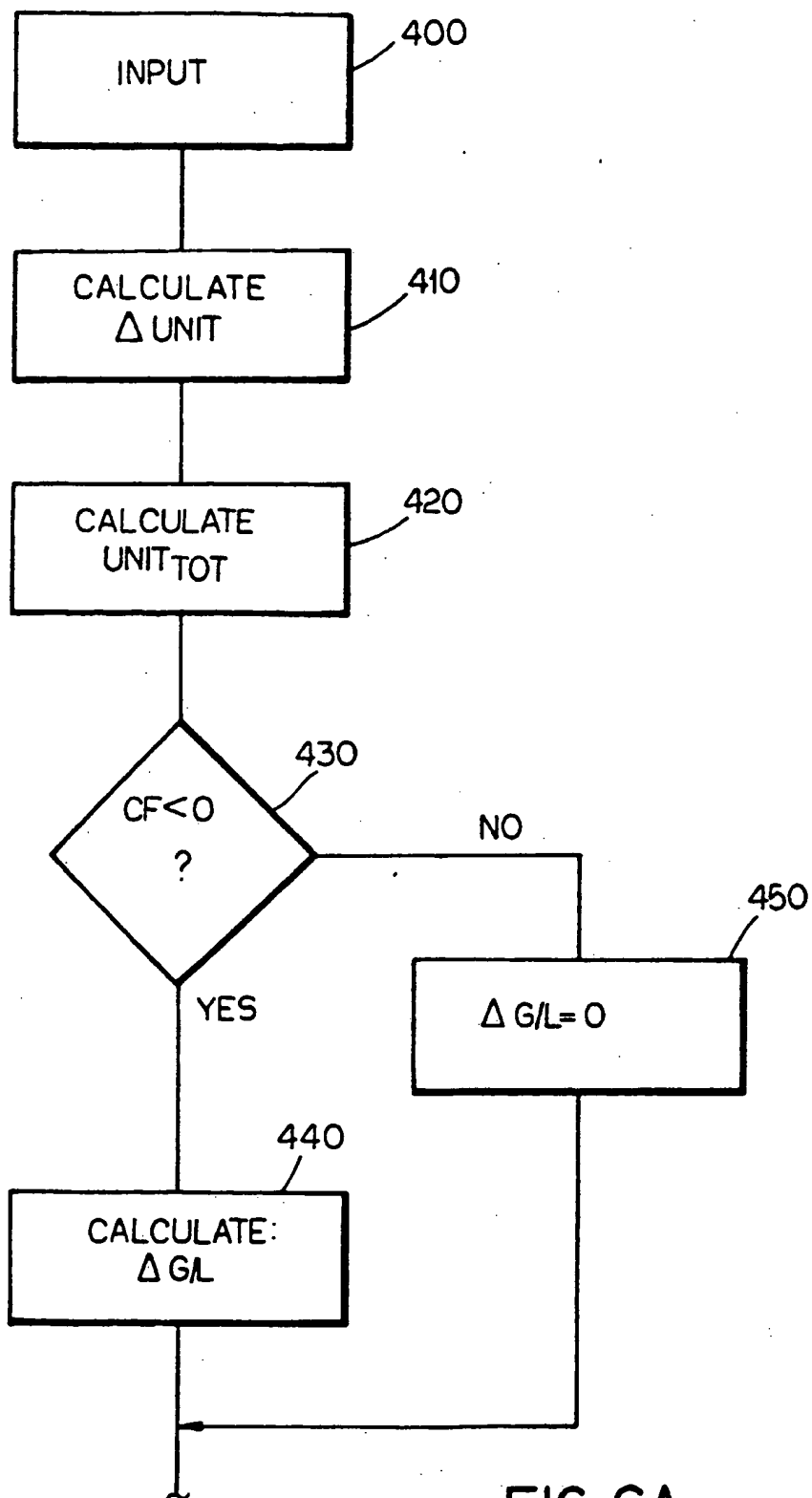


FIG. 6A

FIG. 6B

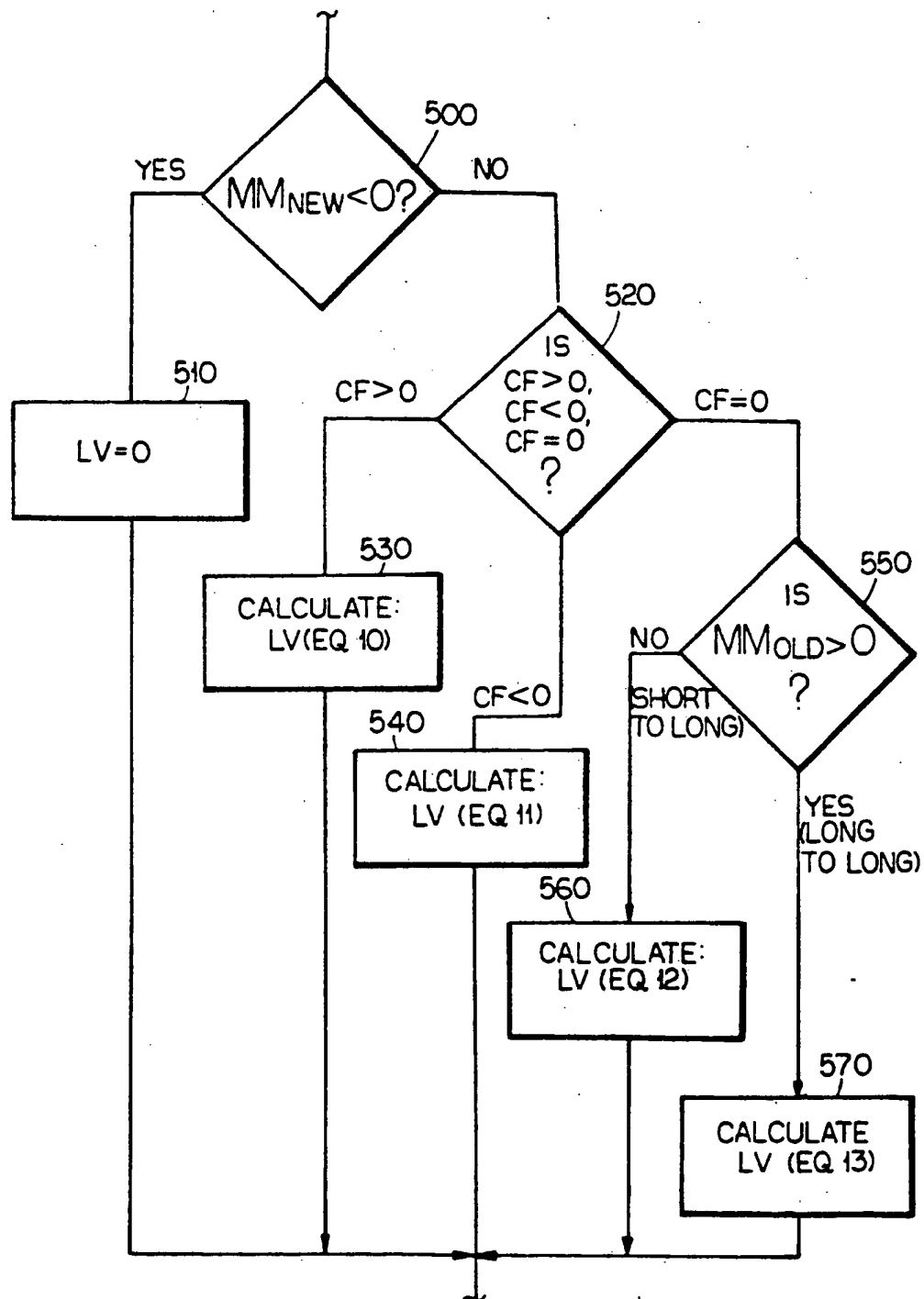


FIG. 6C

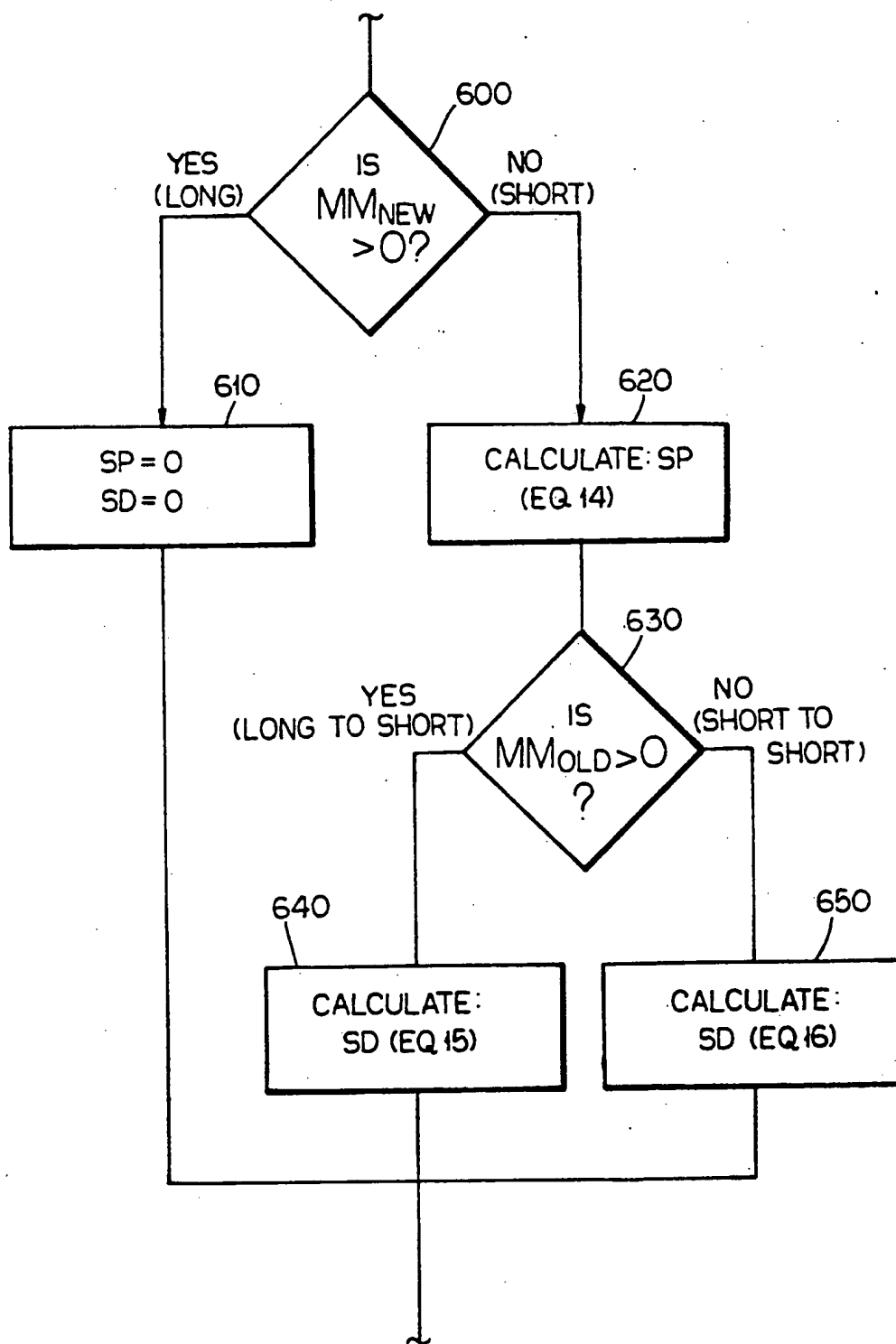




FIG. 6D

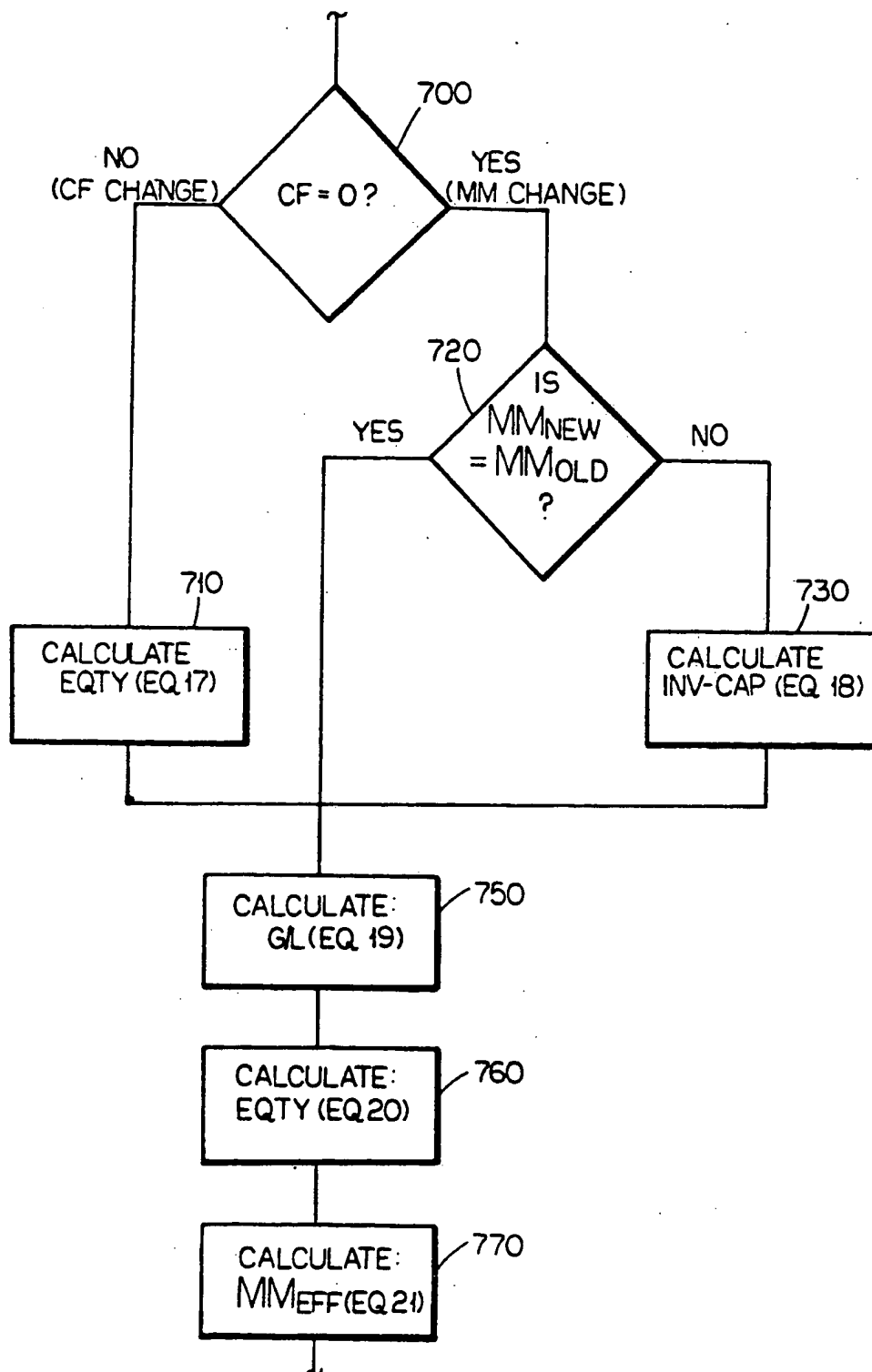
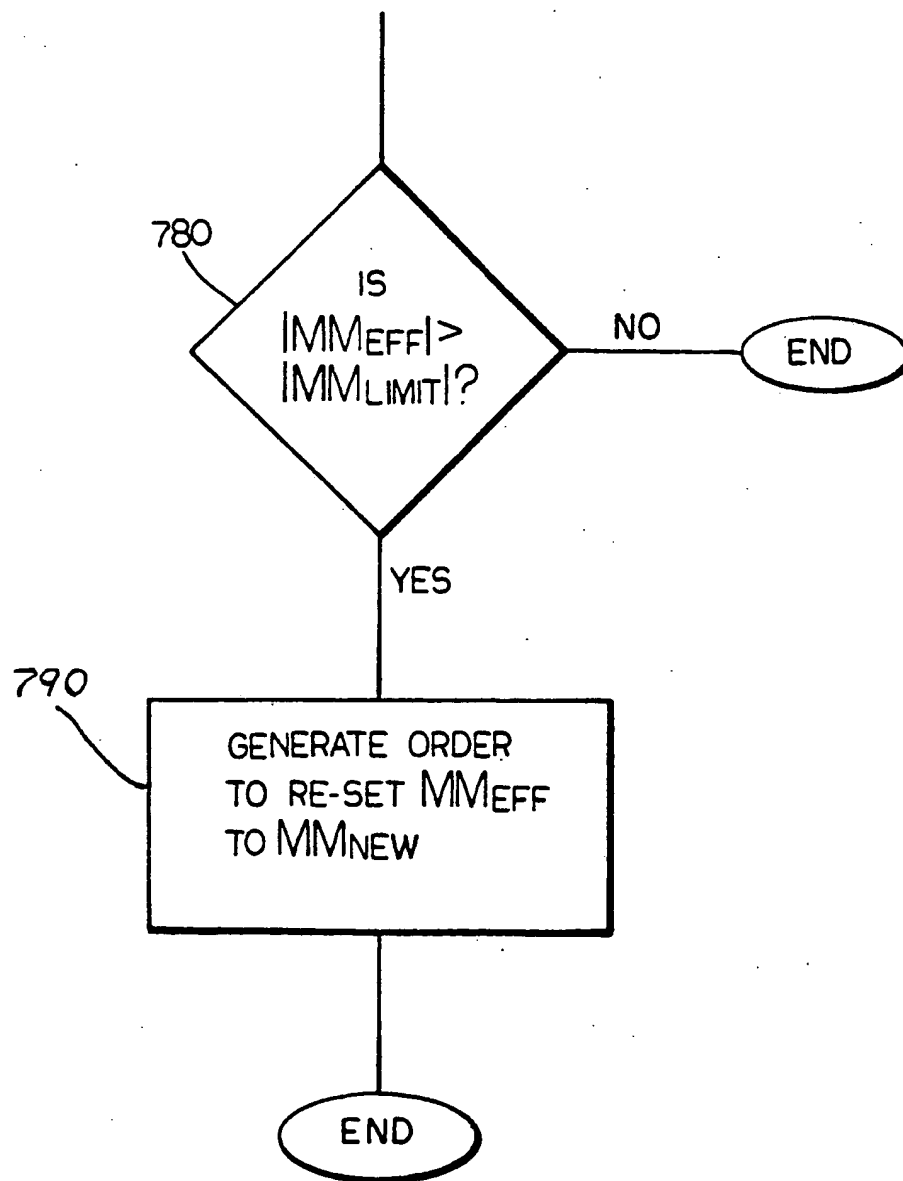


FIG. 6E



(1) TRADE	(2) Request/Event	(3) Cashflow	(4) Market Multiple		(5) Effective	(6) Implied Leverage	(7) Short Sale	
			Specified	Effective			Deposit	Proceeds
1 Pre	Buy 20,000 MM = 1.5	20,000	1.50	1.50	1.50	10,000	0	0
2 Post			1.50	1.50	1.43	10,000	0	
4 Post	Market + 30		1.50	1.50	2.00	23,000	0	0
6 Pre	MM = 2		2.00	2.00	2.00	18,000		
7 Post			2.00	2.00	-1.00			
9 Pre	Sell 5,000	-5,000	2.00	2.00	-1.00			
10 Post		-5,000	2.00	2.00	-1.00			
12 Pre	MM = -1		-1.00	-1.00	-0.89			
13 Post			-1.00	-1.00	-0.87			
15 Post	Market - 20		-1.00	-1.00				
17 Pre	Sell 2,000	-2,000	-1.00	-1.00				
18 Post		-2,000	-1.00	-1.00				
20 Pre	MM = 1		1.00	1.00	1.00	0	0	0
21 Post			1.00	1.00	1.00	0	0	0
23 Post	Market - 30		1.00	1.00	2.00	15,234	0	0
25 Pre	MM = 2		2.00	2.00	2.17	15,324	0	0
26 Post			2.00	2.00				
28 Post	Market - 20		2.00	2.00				
30 Pre	MM = 2 (Reset)		2.00	2.00				
31 Post			2.00	2.00				

FIG. 7A

(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Invested Capital	Gain or (Loss)	Equity	Change Units	Total Units	Trade Eff\$ Amt Eff	Order Units	Mkt Index
20,000	0	20,000	100.00	100.00	30,000	0.00	300
20,000	3,000	23,000	0.00	100.00			330
20,000	2,999	22,999	39.39	139.39	-20,000	100.00	330
15,909	2,091	18,000	-30.30	109.09	0	-30.30	330
18,000	0	18,000	-163.63	-54.54	18,000	-218.18	330
18,000	1,088	19,088	0.00	-54.54			310
16,121	846	16,967	6.06	-48.48	0	6.06	310
16,967	0	16,967	103.21	54.73	31,996	0.00	310
16,967	-1,643	15,324	0.00	54.73			280
16,967	-1,642	15,325	54.73	109.46	0	54.73	280
16,967	-3,831	13,136	0.00	109.46	0	0.00	260
16,967	-3,831	13,136	-7.72	101.74	-30,468	109.46	260

FIG. 7B

## GOAL-DIRECTED FINANCIAL ASSET MANAGEMENT SYSTEM

The present invention generally relates to a data processing system for managing a goal directed investment account, designed for individual and small institutional investors. More particularly, the present invention relates to a programmed controlled financial asset management system for implementing investor participation in capital markets through long and short positions in indexed investment vehicles.

### BACKGROUND OF THE INVENTION

The world-wide capital markets have undergone unprecedented fluctuations during the past decade in response to changing economic, political and financial conditions. This has created an investment environment characterized by rapidly changing inflationary expectations, high real interest rates, volatile exchange rates, and a fully internationalized capital marketplace. Traditional investment devices such as stocks and bonds have been supplemented with more versatile investment vehicles. Indeed, the advent of computerized trading and other forms of advanced information processing has spawned a new family of investment products. Such newly developed products include: second tier ("junk") bonds; commodity options; international capital, real estate, and currency funds; "unmanaged" index funds; REIT limited partnerships (real estate investment trusts); financial futures contracts, and other so-called derivative instruments on many of these forms of capital. Additionally, the integrated mutual fund family has been expanded to offer a broad collection of separate funds directed to these diverse investment choices.

Mutual funds provide the investor the opportunity to participate in the capital markets at a relatively low fee for portfolio management. Most mutual funds are managed by professional money managers with their fees taken as a percent of net asset value of the fund for a given period. These fees finance the large research departments that sift through and select the various investments for the fund. This management fee often varies between 0.5% to 1.5% of the net asset value of the fund. In addition, mutual funds are a legal cooperative of ownership of the selected securities and, therefore, involve all the legal significance of security ownership to the participating investors without the attendant control thereof.

The professionally managed mutual funds have come under recent criticism due to the fact that a significant percentage of managed funds fail to outperform the general equity markets. Recent studies indicate that a significant percentage of all managed funds were outperformed by the S & P 500 index. The S & P (Standard and Poor's) 500 index is a relative valuation of the stocks of 500 large companies, most of which are listed and traded on the New York Stock Exchange. The S & P 500 index is an indicator of the general performance of the United States equity markets. The relatively poor performance of the managed funds has created substantial interest in unmanaged investment products that track the overall performance of the equity markets unencumbered by asset research fees and high transaction costs. This may be accomplished, for example, through indexed stock funds that invest in the stocks of the S & P 500 companies and, therefore, directly track the performance of the S & P 500 index.

In spite of these alternatives, certain investment strategies remain prohibitively expensive to pursue for a significant number of smaller investors. In particular, many investors employ a technique known as market timing, which involves investing in the equity markets at the perceived time of total market growth and divesting at a later time of perceived market contraction. This strategy is usually based on timing the business cycles for the economy as a whole. The investor pursuing this strategy desires to avoid the risk associated with owning individual stocks.

Somewhat antithetical to the market timer is the investor, who seeks the undervalued stock. This investor desires to negate the business cycles so that the selected individual stock, perceived to be undervalued, has an opportunity to appreciate. This investor, therefore, seeks a means of hedging his investment in the undervalued stock with a countering investment to limit the impact of the business cycle on his stock. This is normally accomplished by investing short in the market (i.e., selling borrowed stock or other assets).

Investor hedging can be expanded to include the broader class of portfolio managers interested in "Beta" management which involves tying the risk level of the investor's portfolio to the overall performance of a selected market to meet the specified risk allotment of the portfolio. Beta management will invariably include both long and short positions in certain assets.

The above-described investors are not particularly well served by presently available investment products. For example, the market timer must buy and sell a grouping of securities to capture the swings of the business cycle—a prohibitively expensive undertaking in terms of transaction costs when dealing with individual stocks. The use of options and futures contracts on stock indices solves some problems and permits the investor to take a short position, but due to the short term nature of these investment products, continuous trading is required even though no change in position is desired.

The advent of mutual funds and especially the "no-load" mutual fund families that combine several individual funds that respectively provide for income or capital growth with no sales charge would appear to provide a low cost investment vehicle to the market timer. The market timer would merely switch from the equity fund to an income fund at a time of perceived weakness in the equity markets. In fact though, most mutual fund families are not designed for active switching and many actually restrict the number and size of switches made by an investor. Many such funds also have the option of redeeming in kind, i.e., redeeming the underlying shares to the investor—an undesirable transaction for the market timer. The restrictions discussed above are specifically designed to inhibit the use of fund families by the market timer. Moreover, investors in mutual funds are by definition, owners of the underlying securities. The ownership of securities involves restrictions and regulations that may place an additional burden on the investor.

In hedging and Beta management, the use of direct futures contracts is prohibitively expensive. Moreover, hedging and Beta management, in part, involve short selling which cannot be accomplished vis-a-vis mutual funds.

To implement the above investment strategies in a cost effective manner, an investment system is required that provides the efficiency and cost of a no-load mutual

fund with the versatility of the options and futures contracts market. It was with this understanding of the problems of the prior art that the present invention was made.

### SUMMARY AND OBJECTS OF THE PRESENT INVENTION

It is an object of the present invention to provide a data processing system to control account management and investment tracking for participating investors desiring to accurately direct and adjust the level of portfolio risk.

It is another object of the present invention to provide a stored program controlled data processing apparatus to receive investor requests in terms of asset selection, risk adjustment, and deposits and withdrawals, receive adjustments in current market valuation, and in response thereto, make selected purchases of the designated asset or asset related instruments so that the net position of the participating investor accounts reflects the net level of risk desired by the investors.

It is yet another object of the present invention to provide an apparatus for maintaining individual investor accounts that represent either long or short positions in a given capital market and which permits each investor to selectively establish the degree that the account tracks the market for the selected asset in terms of valuation.

The above and other objects of the present invention are realized in a specific illustrative program controlled data processing system that maintains individual accounts each at a selected level of risk for each asset category selected. The data processing system calculates the aggregate level of risk in that asset category for the individual accounts and establishes an aggregate account position based thereon, via purchases or sales of individual securities, futures contracts in a selected market index, e.g., the S & P 500, or other asset related instruments for that asset category. Account funds are otherwise invested in a mix of income bearing instruments, such as U.S. Treasury notes. As the customer changes the level of risk or makes deposits and withdrawals, the accounts are automatically adjusted through market trades in the relevant asset group. Based on the market transactions, each account is updated in terms of exposure and net asset value. A relatively low administration fee is charged to the customers by the system proprietor.

The foregoing features of the present invention may be more fully understood from the following detailed discussion of a specific illustrative embodiment thereof, presented hereinbelow in conjunction with the accompanying drawings, in which:

FIGS. 1A-1E provide a diagram of the risk and asset accumulation process for the present invention.

FIG. 2 is a schematic diagram of the functional components for the present invention.

FIG. 3 is a flow chart for the overall system operation according to the present invention.

FIG. 4 is a flow chart for the customer data entry into the system.

FIG. 5 is a flow chart for the pre-trade system operation.

FIGS. 6A-6E are a flow chart for the post-trade system operation.

FIGS. 7A-7B are a spread sheet for a single investor's transactions pursuant to the present invention.

### DESCRIPTION OF THE INVENTION

Discussing the instant invention first briefly in overview, it is the fundamental objective of the present data processing system to facilitate the risk management of individual financial asset portfolios. Individual accounts are established in computer memory comprising a monetary valuation and a selected level of correspondence (risk) to changes of valuation of one or more asset groups in each account. The level of risk for each asset group is quantified by a market indicator referred to hereinafter as a market multiple or MM for that asset group. The market multiple specifies the level of correspondence over time between the value of the investor's implied allocation in that asset group and the general market for that asset. For example, an investor wanting part of his/her account to directly track the S & P 500 index selects an  $MM = 1$ . A 50% increase in value for the S & P 500 index, including dividends, will then translate into a 50% increase in value of the investor's account, exclusive of system fees.

Individual accounts will respond to one or several asset groups, each with varying levels of risk as indicated by the selected value of the market multiple for each account. This can be viewed as a customer having "bought" or "sold" an amount of an asset category equal to his/her allocation to that category. In fact, no such transaction occurs in the account.

The customer's account simply responds to the various markets (stocks, bonds, gold, etc.) as though such transactions had occurred. Investors selecting a positive MM will be considered "long" in that asset and with a MM greater than 1.0 will have implied "leverage" to achieve the investor's desired level of risk. In a similar manner, a negative MM value means that an investor's account responds in an inverse manner to the asset index similar to being "short" in that asset. System structure restricts an asset category's MM to an allowable range (from negative-short to positive-long) that is specified by the system proprietor and which is a function of the historical volatility of that asset category's market index. The system automatically reduces the implied leverage in a customer's asset category whenever an adverse price change in that asset's market index has caused the category's "effective" MM (risk) to reach an unacceptably high level. The system aggregates the total level of risk for all customer accounts in each asset group and establishes a recommended net position in the appropriate futures contracts or hard assets for that asset group, to correspond to the aggregate risk level (i.e., aggregate MM).

The account management service is operated by the system proprietor according to the data processing methods and apparatus disclosed herein. Referring now to FIG. 1, the overall relationship of system participants is graphically depicted. As can be seen, the system is adapted to receive multiple investors, each requesting diverse types and levels of investment. Customer A, for example, desires the effect of a long position in U.S. stocks, with a corresponding MM of, e.g., 1.5 ( $MM = 1.5$ ), a straight ( $MM = 1.0$ ) position in gold, and liquid assets (cash), invested at current short term rates. Customer B, on the other hand seeks the effect of going short on U.S. stocks, e.g.,  $MM = -2.0$  with the remainder of his account responding as though it were in cash.

For each participating investor, an account is opened with an initial deposit. These funds are deposited with a bank or similar establishment acting as trustee for the

system proprietor. The composite position of the participating investors is calculated for each asset group offered by the system proprietor. These asset group positions are then translated into investments in the marketplace by the system proprietor in a manner that guarantees a return to each participating investor corresponding to the implied "position" (MM) in that asset group. More particularly, the system proprietor is in communication with various exchanges or brokers and will place buy/sell orders in each asset group according to the aggregate level of exposure. Certain investors' choices of asset and MM, when aggregated, will result in no net purchases on the exchange, e.g., Customer A's position in U.S. stocks (long) will partially offset Customer B's position in U.S. stocks (short). Nevertheless, the system, as will be more fully discussed below, will provide both Customer A and Customer B with their selected level of correspondence to the U.S. stock market.

The functional components of the operative system are presented in FIG. 2. These components are interconnected and communicate, via address and data buses in the computer hardware 20. Investment account data is entered into the system through various forms of inputs which will include interactive terminals at, e.g., a participating investor's location. Other forms of input to the system can include interactive data entry through a personal computer or a touchtone telephone system as is per se well known to those skilled in this art. The data entry will include requests for deposits, withdrawals and changes in the market multiple, MM.

A communication link exists between the system proprietor and the trading exchange for the asset markets of interest. This link provides the data processor with current market data in terms of index values and interest rates. This information is time tagged and digitized for entry into the system. The system proprietor will trade assets on the exchange pursuant to the calculated position provided by the system, and the current market data.

System operation is governed by the CPU (central processing unit) which receives the inputted data from the participating investors, in terms of deposits or withdrawals and changes to asset category weighting and respective MM. The CPU then performs an iterative calculation determining a required asset mix position for each account in response to the recently entered data for the operative period. The CPU aggregates the individual required trading positions for each account in each asset to determine a net trade in that asset group in response to all participants' requests and thereafter provides a recommended buy/sell order for execution in the marketplace. To the extent that the net of deposits and withdrawals and changes in asset weightings and MMs results in no new buying or selling being required by the system proprietor, significant transaction expenses are saved, which enable lower fees to be charged to participants.

Confirmation of the trade execution on the exchange is transmitted back to the system which then updates each account balance accordingly, with the end period information stored in memory. Access to the current account information is available to each participant, via the above-described input arrangement.

As indicated in FIG. 2, the management system is a programmed controlled data processor with attendant input/output capabilities, account and exchange communication links, and mass data storage. The hardware used to accomplish the herein described programmed

directives is preferably a microprocessor based computer system compatible with the selected programming language and peripherals and having sufficient computational speed to handle the level of participating investors at the selected level of turnover. The mass storage of the account data is preferably by magnetic storage media, although other forms of data storage are acceptable if non-volatile and having sufficient volume. Although the programming language is not particularly limiting, the large data bases involved in this system would be best handled by a higher order relational database language for implementation.

Referring now to FIG. 3, the sequence of operations is shown in block diagram form. In essence, the system is in continuous operation, reflected by the circular path between the operative events. Event (1) involves the Pre-Trade Adjustments made to the accounts pursuant to entered changes in MM, and deposits or withdrawals for various asset groups. These adjustments are made corresponding to the entered request by participating investors. A Trading Cut-Off Event (2) is set, and requests received after this event are incremented to the next trading period for execution. Event (3) provides for the system execution of all the requisite trading for that trading period. Execution of these trades are made and confirmed via communication with the various exchanges as discussed above. The operative path conceptually terminates with Event (4) which involves the Post-Trade Account Adjustments reflecting the just completed trade execution. The next trading cycle is then initiated for all orders and requests received after the prior Trade Cut-Off.

The input of customer instructions can be more clearly understood in conjunction with FIG. 4, wherein customer instructions are entered into the system, Block 100, and time tagged (T). Test 110 determines whether the request is before or after the current trade Cut-Off (T) (Event 2 of FIG. 3). If before, the transaction requested is placed for the current trade execution event (Block 130). Otherwise, the transaction is incremented to the next trade execution event (Block 120). In either case, the system performs the Pre-Trade Adjustments, Block 140, for that participating investor, in preparation for trade execution at the designated trading execution event (Block 150). As can be seen, all trades by the proprietor in response to participating investors' requests are separately and sequentially numbered using the counter "T" thus forming a string of trading "Lots" for each account.

The Pre-Trade Adjustments involve converting the investors' inputted requests into an executable trade format reflective of the investor's adjustment in that asset category. This conversion process is broken down into two components since, during the Pre-Trade Event, actual prices for buy/sell orders are unknown. The two components are the effective dollar amount for the adjustment (EFF\$AMT) and the effective units (EFFUNITS) for the adjustment. The effective units are, in fact, the expected actual units of the index or its futures contracts that will result from the upcoming trade.

FIGS. 5 and 6 provide flow charts for the Pre-Trade and Post-Trade Account Adjustments. Table 1 below provides a variable list for these flow charts.

TABLE 1

1. ASST	- asset group undergoing adjustment
2. CF	- cash flow; amount added or withdrawn by

TABLE 1-continued

3. CUST ID	customer
4. EFFSMT	- customer identification or label } amount of dollars and units (+) to buy, or sell (-) to adjust the required hedge for
5. EFFUNIT	} this customer's new position
6. EQTY	- net value of customer holdings in this asset group
7. G/L	- unrealized gain/loss for customer for asset group
8. IDX	- current asset's market index value
9. INV-CAP	- the position of a customer's capital that is responding to this asset category's market index
10. LOT	- position (units) in customer account for a designated (T) trade
11. LV	- implied "leverage" of customer for long position
12. MM	- specified market multiple of asset category
13. MMEFF	- effective market multiple
14. MMLIMIT	- the limit the system proprietor sets on the MMEFF for this asset category
14. OVSA	- original value of selected assets: asset chosen by customer from prior Lots (T) for current sale in the market
15. SD	- implied short deposit: amount allocated by customer for a "short" position in an asset
16. SP	- implied short proceeds: initial value of asset "sold" for a short position
17. UNIT	- total implied units of participation owned (long) or sold (short)

In the formulae that follow, subscripts "OLD" and "NEW" indicate whether or not the value of a variable was determined before or after the latest determination of the asset's market index.

Referring now to FIG. 5, the Pre-Trade Account Adjustment logic path is provided. At Block 200, the inputted data includes the Customer Identification (CUST ID), Asset Group (ASST), the new multiple for that Asset Group (MM<sub>NEW</sub>), and the amount deposited or withdrawn from that Asset Group (CF). Test 210 checks CF for three possible values: negative, positive or zero. If CF is positive, this indicates an allocation to this asset group and logic branches to 220 and 250, wherein the following calculations are performed:

$$EFFSMT = CF * MM_{NEW} \quad (1)$$

$$EFFUNIT = 0 \quad (2)$$

If money is withdrawn, CF < 0, and logic branches to Blocks 230 and 260. The system therein determines the following quantities:

$$EFFSMT = 0 \quad (3)$$

$$EFFSMT = [-1 * \text{Min}(|CF|, INV-CAP + G/L) * UNIT] / [INV-CAP + G/L] \quad (4)$$

In EQ (4), the system selects the minimum value between the absolute value of CF and the equity (INV-CAP + G/L) for this asset.

When the account multiple is changed, CF = 0, and logic branches to Blocks 240 and 270, the system performs the following adjustments reflective of a changing MM:

$$EFFSMT = MM_{NEW} * (-LV + SP + SD) \quad (5)$$

$$EFFUNIT = UNIT * (MM_{NEW} - 1) \quad (6)$$

The above Pre-Trade Adjustments are made pursuant to the entry of a customer request, e.g., a deposit/withdrawal or a new multiple. Composite requests are

broken down into the single request format and entered into the system separately. These requests are accumulated for each customer and asset group during the pre-trade cycle; in this way, a customer may make several adjustments all within the same cycle. At the trading cut-off, the composite EFFUNITS and EFFSMT are summed and converted into purchase/sale orders of various capital instruments, e.g., futures contracts, stocks, bonds, gold, etc. The market value or index at which the composite trade was executed is entered as a system parameter, and used in Post-Trade Account Adjustments as described hereinbelow.

More particularly and referring to FIG. 6, the individual accounts are adjusted pursuant to the most recent trade data. FIG. 6 provides a logic flow path for the operative system regarding Post-Trade Account Adjustments. At Block 400, the system receives inputted data on each customer, including CUST ID, asset group, current multiple (MM<sub>NEW</sub>), cash flow (CF) and the market index (IDX) for that asset group for the last trade execution.

Applying the recent index (IDX) from the last trade, the system determines  $\Delta$  UNIT and UNIT at Blocks 410 and 420, respectively:

$$\Delta \text{ UNIT} = (EFFSMT / \text{IDX}) + \text{EFFUNIT} \quad (7)$$

$$\text{UNIT} = \text{UNIT} + \Delta \text{ UNIT} \quad (8)$$

When the customer has withdrawn funds, he/she can select the specific asset units that are traded during execution for currency. Since prior positions are identified by lot number, the customer can choose to reduce assets (units) "purchased" much earlier having a certain basis, or select later acquired units from a more recent allocation for that customer having a potentially different basis. The choice will depend upon the tax implications sought by the customer. In this way, the customer can select assets for transactions to minimize the capital gain or maximize capital loss.

More particularly, Test 430 determines whether assets are sold (i.e., CF < 0 indicating asset withdrawal); if so, logic branches to Block 440 wherein the above-described calculation to determine the net gain or loss,  $\Delta$  G/L, is made pursuant to the customer selected lots and the following relationship:

$$G/L = |UNIT * \text{IDX}| - |OVSA(T)| \quad (9)$$

wherein OVSA represents the Original Value of Selected Assets. If CF > 0, then by definition,  $\Delta$  G/L = 0 (Block 450).

Continuing in FIG. 6, Test 500 determines whether the new multiple, MM<sub>NEW</sub>, is negative (reflecting an implied short position); if so, logic branches to Block 510 and the implied leverage, (i.e., the amount of implied borrowing by the customer to support a long position) is set to zero (LV = 0).

If MM<sub>NEW</sub> is not negative, the customer is "long" and logic branches to Test 520, which adjusts the logic path contingent on the value of cash flow, (CF). If CF > 0, then the leverage is recalculated at Block 530.

$$LV = LV + (CF * (MM_{NEW} - 1)) \quad (10)$$

If CF < 0, then leverage is calculated at Block 540:

$$LV = LV - \text{Min}[(MM_{NEW} - 1) * CF], LV \quad (11)$$



wherein the system selects the minimum value between the current leverage and the portion of the withdrawal allocated to borrowed funds. This step insures that withdrawals from the account reduce implied leverage proportionately.

If  $CF=0$ , logic branches to Test 550 wherein the last multiple ( $MM_{OLD}$ ) is checked; if  $MM_{OLD}<0$ , the customer has shifted from short to long and the new leverage position is calculated in Block 560:

$$LV = [(UNIT_{OLD} * IDX) * (MM_{NEW} - 1)] - SD + SP \quad (12)$$

If  $MM_{OLD}>0$ , then the customer has remained long in the asset and leverage is recalculated as follows (Block 570):

$$LV = LV + (\Delta UNIT * IDX) \quad (13)$$

Test 600 checks the current value of the multiple ( $MM_{NEW}$ ); if greater than zero, the customer is long and, by definition, the short proceeds (SP) and short deposit (SD) are set at zero in Block 610. If  $MM_{NEW}<0$ , the customer is short and the system calculates the SP and SD for the customer. More particularly, at Block 620, the short proceeds are calculated based on all customer lots from prior transactions:

$$SP = \Sigma(UNIT_{rem} * IDX) \quad (14)$$

Wherein  $UNIT_{rem}$  is the amount of remaining units in each lot and the sum is for all lots for that customer-asset.

If  $MM_{OLD}>0$ , Test 630, the customer has gone from long to short in the asset, and the short deposit is determined in Block 640, as follows:

$$SD = (UNIT_{OLD} * IDX) - LV_{OLD} \quad (15)$$

Wherein the UNIT and leverage value are from the prior long position. If the  $MM_{OLD}<0$ , the customer has remained short, and the short deposit is adjusted in Block 650 as follows:

$$SD = SD + CF \quad (16)$$

Continuing in FIG. 6, if a deposit or withdrawal has been made ("NO" to Test 700), logic branches to Block 710, and the current customer investment capital corresponding to the asset category is determined:

$$INV-CAP = INV-CAP + CF + \Delta G/L \quad (17)$$

If  $CF=0$  and  $MM_{NEW}=MM_{OLD}$ ,  $INV-CAP$  is unchanged; if the sign of  $MM_{NEW} \neq$  sign of  $MM_{OLD}$ , then  $INV-CAP$  is calculated as follows:

$$INV-CAP = (UNIT_{OLD} * IDX) - LV + SD + SP \quad (18)$$

The system then determines the gain or loss (G/L) for this asset pursuant to Block 750:

$$G/L = (UNIT_{TOT} * IDX) - LV + SD + SP - INV-CAP \quad (19)$$

Followed by the determination of Equity (Block 760):

$$EQTY = INV-CAP + G/L \quad (20)$$

Finally, the effective multiple ( $MM_{EFF}$ ) is calculated, based on current index and equity in that asset (Block 770):

$$MM_{EFF} = (UNIT_{TOT} * IDX) / (INV-CAP + G/L) \quad (21)$$

The system then determines if the effective multiple ( $MM_{EFF}$ ) is greater than the limit the system proprietor has set for effective multiples ( $MM_{LIMIT}$ ). If so, then (Block 790) the system generates the order to "re-set" the effective multiple to the specified. This order is handled just like the customer had called in the same order and is executed by entering the order in Block 100.

The above calculations are repeated for each transacted asset in the customer's account and for each customer requesting transactions that were effected during the most recent trade execution. The updated accounts are stored in memory and accessed according to need, e.g., monthly statements and account status requests.

In this way, the system provides the performance of a low-cost investment in key asset groups via accounts under automatic management. The individual investors select the desired assets and level of risk exposure and the system creates an investment position in response thereto.

#### EXAMPLE

The system operation is more easily understood in the context of an example of its use. The following example is directed to the various system adjustments and transactions as applied to a single investor, bearing in mind that many investors would be accessing the system simultaneously.

More particularly, and referring to FIG. 7, a spread sheet is shown with the first column representing a sequence of events inputted into the system governing a single account. These events have row numbers 1-31 with the additional labels of "pre" and "post" indicating the form of adjustment made to the customer's account, i.e., the Pre-Trade and Post-Trade Account Adjustments. The system maintains and adjusts multiple accounts in a manner similar to that exemplified in FIG. 7.

On line 1, the customer has requested a "purchase" of \$20,000 ( $CF=\$20,000$ ) of participation in the U.S. Stock Market at a "long" multiple ( $MM=1.5$ ). The Pre-Trade Account Adjustments calculate both  $EFF\$AMT$  (at \$30,000) and  $EFFUNIT$  (at 0) in preparation of a trade pursuant to the customer's deposit.

At columns 14-16, the trade order to the system (in this example, a single customer) is shown at the index value (IDX) of 300, the current market price of the S & P 500 index. From this transaction, the system updates the customer's account through the post-trade algorithms, as summarized on line 2. In this regard, leverage, LV, is calculated from EQ 10 above to be \$10,000, and so on.

On line 4, a market value increase of +30 is translated to a \$3,000 Gain in Column 10 ( $30 * 100$  units). Otherwise, the customer entered no changes to the account during this trading period.

On line 6, the customer has increased his long position by changing his multiple (MM) to 2. Based on this change,  $EFF\$AMT$  and  $EFFUNIT$  values are determined and converted into an adjusted equity position through the implied purchase of 39.39 units at an index value of 330 (IDX); continuing on line 7, the customer's account is updated pursuant to this transaction.

Continuing in a similar manner, FIG. 7 exemplifies various changes in system parameters and the impact these changes have on the customer's position. Please note that line 30 involves a "reset" wherein the customer desires that the effective multiple ( $MM_{EFF}$ ) match the selected multiple ( $MM_{NEW}$ ); this reset process results in a closer relationship between actual market performance and the response of the customer's portfolio, in accordance with the original multiples. Resetting the multiple this way can be done automatically in the system (when the effective multiple,  $MM_{EFF}$ , exceeds the limit set by the system proprietor), or as a basis of a separate request as shown above.

The principles of the above system, described in reference to the U.S. equity market, as measured by the S & P 500, are equally applicable to trading in other asset categories, thereby providing a participating investor the opportunity to select and balance the portfolio risk exposure in countervailing investment opportunities. For example, the investor may allocate his investment assets with an aggressive,  $MM=1.5$ , in a U.S. dollar index position, balanced by going short,  $MM=-1.0$ , in gold. By pooling this investor's position with many like and oppositely positioned investors at a minimal fee, the system lowers overall transaction costs to each investor. This fee may be contingent on net asset value for a set period, or determined on some other basis, e.g., extent of participation in the various assets or the number of transactions for a given period.

The above-described arrangement is merely illustrative of the principles of the present invention. Numerous modifications and adaptations thereof will be readily apparent to those skilled in the art without departing from the spirit and scope of the present invention.

What is claimed is:

1. A data processing system for administering a program to provide a future return commensurate with a selected degree of correspondence to a capital market, said system comprising:

means for receiving and storing data on accounts from participating investors, including for each account a selected proportionality factor,  $MM$ , indicative of the degree of correspondence between a valuation of said account and valuation of said capital market;

means for receiving adjustment requests from said participating investors for said accounts;

means responsive to said adjustment requests for determining an asset transaction in said capital market wherein said asset transaction is proportional to a net aggregate value of all said adjustment requests for said asset; and

means for adjusting said participating investor accounts responsive to said asset transaction and said adjustment requests.

2. The system of claim 1, wherein said capital market valuation is characterized by an index value of selected assets on said capital market.

3. The system of claim 2, wherein said means responsive to said adjustment requests includes means for determining a net purchase or sale of assets selected from the group consisting of futures contracts, options, common stocks, bonds, currencies and commodities.

4. The system of claim 3, wherein said data processing system is a stored program controlled digital computer that iteratively adjusts each investor account, pursuant to said asset transactions.

5. The system of claim 4, wherein said means for receiving adjustment requests includes means for accepting deposits or withdrawals for each investor account.

6. The system of claim 5, wherein said investor account data includes current and past valuations of said account.

7. A data processing method for administering a program to provide an investment account a rate of return commensurate with an established capital market, said method comprising the steps of:

a. Receiving and storing account parameters for said investment account, including an account asset allocation and a selected proportionality factor relating the rate of return between said investment account to said established capital market;

b. Receiving on a periodic basis a market index value ( $IDX$ ), wherein said market index value represents a valuation of assets for said established capital market;

c. Receiving adjustments to said account parameters and determining a position change for said investment accounts based thereon;

d. Determining a total net position change for all participating investors at said market index value ( $IDX$ ).

e. Adjusting said account parameters responsive to said position change for said investment account.

8. The method of claim 7, wherein said total net position change for all investor accounts is translated into purchase or sale-orders of assets selected from the group consisting of futures contracts, options, common stocks, bonds, currencies and commodities.

9. The method of claim 8, wherein said receiving and storing step (a) includes maintaining said  $MM$  through position changes in said account.

10. The method of claim 9, wherein said receiving and storing step (a) further comprises deposits or withdrawals ( $CF$ ).

11. In combination in a data processing system for supervising an investment group of plural investment accounts, each account having investment parameters including an account balance and a proportionality factor, said data processing system comprising: market data entry means for receiving a current market index representative of a periodic valuation of a selected market; account data entry means for receiving account deposits, withdrawals and changes to said proportionality factor; means for determining an investment group investment position in the selected market in response to an aggregate adjustment to said accounts; data processing means responsive on a periodic basis to said current market index deposits, withdrawals or changes in said proportionality factor for adjusting each account so that an account valuation corresponds to the selected market index; storage means for recording net changes in account balances and said investment group investment position; and output means for interactive communication to said market and system participants.

12. In combination in the system of claim 11, wherein said proportionality factor is a factor applied to each said investment account indicative of the arithmetic relationship between an account valuation and a valuation of the selected market.

13. In combination in the system of claim 11, wherein said market index corresponds to an asset price as transacted on said selected market.

14. In combination in the system of claim 13, wherein said asset price corresponds to futures contracts on said selected market.

15. In combination in a data processing system for managing plural accounts to provide for each account a rate of return commensurate to an established form of capital, comprising: a data entry means for receiving and storing information on each said account including an account balance and a proportionality factor relating the rate of return between the account balance and the established form of capital, a customer request entry means for entering changes to the account information including deposits, withdrawals and changes to said proportionality factor for said account, a data processing means for determining an investment position contingent on an aggregation of said account information, a market communication means to effect a transaction pursuant to said investment position, and an automatic adjustment means to adjust said accounts corresponding

to said transaction and said proportionality factor pursuant to preset limits regarding an exposure level for said account in said form of capital.

16. The system of claim 15 wherein said proportionality factor is a market multiple, MM(I), providing a long or short market relationship between the valuation of said form of capital on a market and the valuation of said account, contracts, options, common stocks, bonds, currencies and commodities.

17. The system of claim 16 wherein said automatic adjustment means compares an effective MM(I) for said account to a preset limit and effects a transaction that adjusts said account so that said effective MM(I) for the account is below said present limit for said account.

18. The system of claim 15 wherein said transaction is effected in assets selected from the group consisting of futures contracts, options, common stocks, bonds currencies and commodities.

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